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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT NO. [redacted]

CD NO.

COUNTRY Latin America

DATE DISTR. 4 APR 52

SUBJECT Geographic Work in Latin America

NO. OF PAGES 3

PLACE ACQUIRED [redacted] 25X1C

NO. OF ENCLS. (LISTED BELOW)

DATE ACQUIRED B[redacted]

SUPPLEMENT TO REPORT NO.

25X1X

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SOURCE DOCUMENTARY

1. Available on loan from the CIA Library is the first draft of a document entitled Geographic Work in Latin America by Latin American Geographers, Government Agencies and Geographic Societies, Preliminary Edition issued at Northwestern University by the Committee of Latin American Geography, Division of Geology and Geography. National Research Council, Clarence F. Jones, Chairman of the Committee, July 1951.

2. This first draft will be revised and published only if the National Research Council has sufficient funds to do so, which has not as yet been determined.

3. The chief objectives of this report were to make a survey under the following headings of the geographic work being done in Latin America:

   (1) Geographers in Latin America and their research programs.

   (2) Programs of geographic work by Latin American government agencies, including geographic mapping programs.

   (3) Geographic societies in Latin America and their chief fields of interest and publications.

4. The Table of Contents is as follows:

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Mexico

History and Philosophy of Geography in Mexico
Mexican Geographers
Geography in Government Agencies
Geographic Societies
Geographic Education
Resources for Geographic Research and Instruction

The West Indies

The Caribbean Commission
British West Indies
Cuba

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Dutch West Indies
French West Indies
Haiti
Puerto Rico

Guatemala, El Salvador, Honduras, and British Honduras

Guatemala
El Salvador
Honduras
British Honduras

Panama, Costa Rica, and Nicaragua

Costa Rica

Colombia

Geographers in Colombia
Geographic Work in Government Agencies
Geography in Education
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Geographic and Cartographic Work in Venezuela

Geography

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The Development of Geographical Instruction in Venezuela

Present-Day Geography in the Schools

Recent Investigations by Foreigners

Cartography

Early Maps
Travels of Von Humboldt and Schomburgk
Codazzi's Atlas
The Plano Militar
Development of Cartografia Nacional
Other Cartographic Projects
Cartographers in Government Institutions
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Part-time Cartographers
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Mapping Activities of Petroleum Companies

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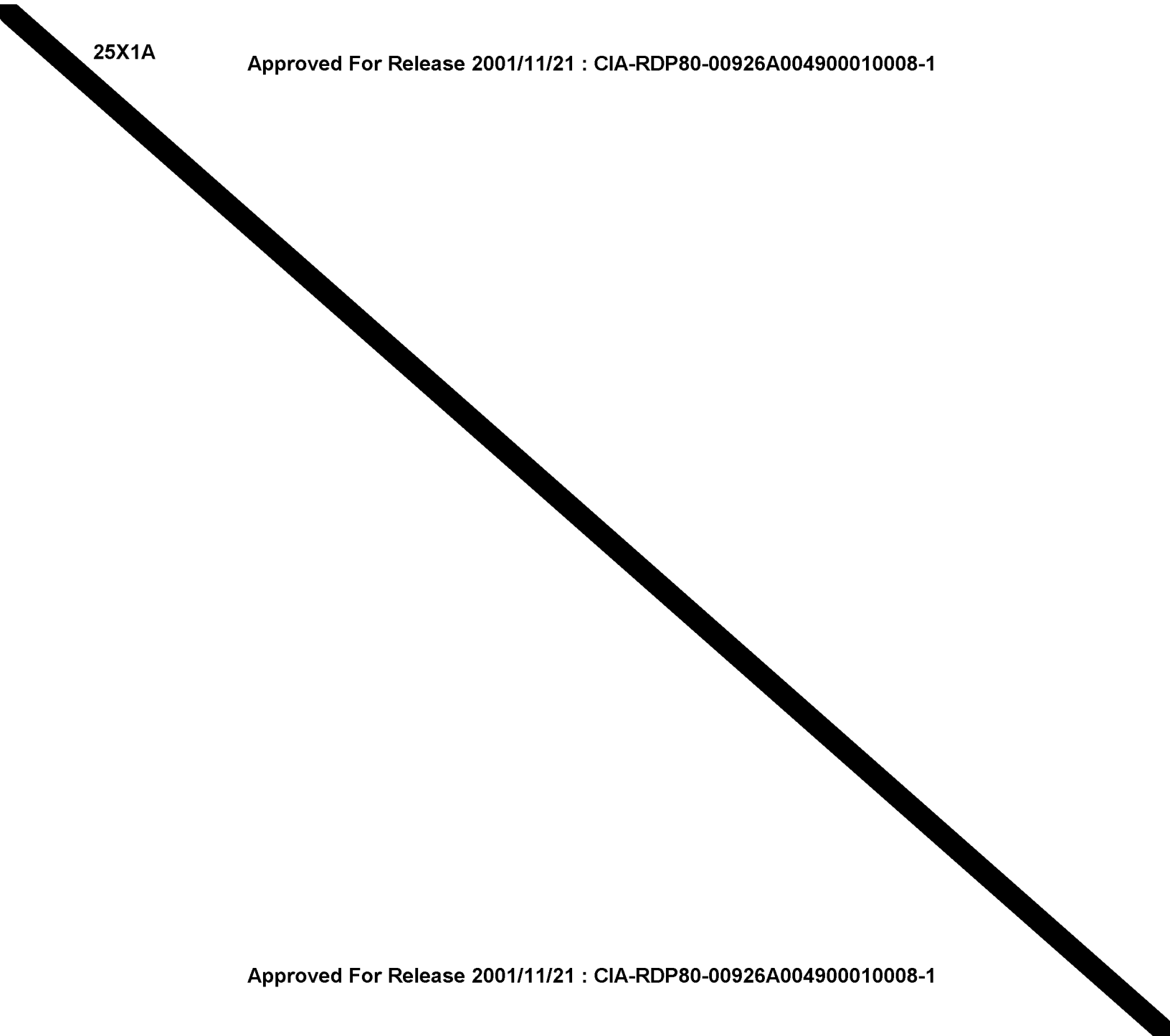

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GEOGRAPHIC WORK IN LATIN AMERICA BY LATIN AMERICAN GEOGRAPHERS, GOVERNMENT AGENCIES AND GEOGRAPHIC SOCIETIES

Preliminary Edition
Issued at
Northwestern University

By

THE COMMITTEE ON LATIN AMERICAN GEOGRAPHY
DIVISION OF GEOLOGY AND GEOGRAPHY
NATIONAL RESEARCH COUNCIL
Clarence F. Jones, Chairman of the Committee

NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue
Washington 25, D. C.
July 1951

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Preface

"The Status of Geographic Work in Latin America by Latin American Geographers, Government Agencies, and Geographic Societies" is an outgrowth of the continuing interest of about a dozen North American geographers, who consider Latin America among their special fields of interest, and of the support of the Division of Geology and Geography, National Research Council to the work of its Committee on Latin American Geography. The Committee has been in existence since 1946.

None of the sections of the present report is to be considered as more than preliminary in nature, because each is incomplete. The report has been mimeographed at this stage and is being distributed to all persons who have contributed to it, and to the national members of the Commission on Geography of the Pan American Institute of Geography and History in the hope that these persons will send the Chairman constructive criticisms and additions. It is planned to issue a more complete version for the next annual meeting of the Division of Geology and Geography, National Research Council in April, 1952, and perhaps to distribute copies to members of the Pan American Consultation on Geography in Washington in 1952.

This preliminary edition is issued by the Department of Geography, Northwestern University with the financial assistance of the Division of Geology and Geography, National Research Council. The Chairman of the Committee expresses his sincere appreciation for the willingness with which each subcommittee chairman took on a difficult assignment and for the quality of the reports presented.

Northwestern University
Evanston, Illinois
July, 1951

Clarence F. Jones

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GEOGRAPHIC WORK IN LATIN AMERICA BY LATIN AMERICAN GEOGRAPHERS, GOVERNMENT AGENCIES AND GEOGRAPHIC SOCIETIES

INTRODUCTION

Late in 1947 and early in 1948, the Committee on Latin American Geography of the Division of Geology and Geography of the National Research Council set up several working Subcommittees to investigate the status of geographic work in Latin America. The Committee on Latin American Geography consists of the following:

Clarence F. Jones, Chairman of the Committee, Chairman, Department of Geography, Northwestern University, Evanston, Illinois.
Donald D. Brand, Chairman of the Subcommittee on Mexico, Head, Department of Geography, University of Texas, Austin, Texas.
Rafael Pico, Chairman of the Subcommittee on the West Indies, Chairman, Puerto Rican Planning Board, Santurce, Puerto Rico.
Daniel Stanislawski, Chairman of the Subcommittee on Guatemala, British Honduras, El Salvador, and Honduras, Associate Professor of Geography, University of Texas, Austin, Texas.
Paul C. Morrison, Chairman of the Subcommittee on Nicaragua, Costa Rica, and Panama, Professor of Geography, Michigan State College, East Lansing, Michigan.
Robert G. Long, Chairman of the Subcommittee on Colombia, Associate Professor of Geography, University of Tennessee, Knoxville, Tennessee.
Charles B. Hitchcock, Chairman of the Subcommittee on Venezuela, Executive Secretary, American Geographical Society, Broadway at 156 St., New York, 32, New York.
Preston E. James, Chariman of the Subcommittee on Brazil, Professor of Geography, Syracuse University, Syracuse, New York.
Arthur P. Biggs, Chairman of the Subcommittee on Argentina, Uruguay and Paraguay, Attache (Geographer) American Embassy, Buenos Aires, Argentina.
F. Webster McBryde, Chairman of the Subcommittee on Ecuador and Peru, Consultant, Office of the Coordinator, International Statistics, Bureau of the Census, c/o American Embassy, Quito, Ecuador.
Frank L. Keller, Chairman of the Subcommittee on Bolivia and Chile, Professor of Geography, Tulane University, New Orleans, La.[1]

Chairmen of the Subcommittees were assisted by other North American and Latin American geographers. Credit is given them in the respective sections.

The Subcommittees had as their chief objectives a survey under the following headings of the geographic work being done in Latin America:

(1) Geographers in Latin America and their research programs.

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1. The Sections on Bolivia and Chile have not been completed.

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(2) Programs of geographic work by Latin American government agencies, including geographic mapping programs.
(3) Geographic societies in Latin America and their chief fields of interest and publications.

Some of the subcommittees adhered closely to these objectives; others expanded on them, adding geography in Universities and other schools, and foreign geographers who have worked in Latin America; still others omitted one or more of the objectives. The sections vary greatly in scope and detail.[2] Some include geographers and other persons in related fields doing geographic work in a given country; others include only those persons known as geographers.

The status of geographic work in Latin American countries varies greatly. In some countries there are few geographers or other persons engaged in geographic work. With trained personnel, active societies and strong government agencies, Brazil, Mexico and Argentina lead all other Latin American countries in geographical activities. However, significant geographic work is being done in several other countries by mapping agencies, such as Instituto Geografico Militar, various government agencies, and by professors in university faculties.

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2. For some countries additional information is contained in (1) Jorge Zarur, Geography and Cartography for Census Purposes, Committee on the 1950 Census of the Americas, Office of the Coordinator, International Statistics, Bureau of the Census, Washington 1947, 57 pages. Mimeographed, (2) George B. Cressey, "Geography in Latin America", Bulletin of the International Geographical Union, Vol. I, June 1950, pp. 6 - 12, (3) "Repertorio de Geografos de La Argentina", Sociedad Argentina de Estudios Geográficos, GAEA, Boletín No. 27, 1950, 1950, pp. 27 - 42, and (4) "Informe Nacional de Actividades", Comisiones de Cartografia, Geografía, e Historia, Seccion Nacional del Instituto Panamericano de Geografía e Historia, Buenos Aires, 1950, 105 pages.

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MEXICO[1]

The discussion of geographic work in Mexico deals with the history and philosophy of geography in Mexico, Mexican geographers, geography in government agencies, geographic societies, geographic education, and resources for geographic research and instruction.[2]

HISTORY AND PHILOSOPHY OF GEOGRAPHY IN MEXICO

Colonial Period. The Spanish crown was greatly interested in information concerning its newly acquired possessions in the New World — both to aid in administration and for the intrinsic value of the information. Positions were established (in several grades) of cosmographer, chronicler, protomédico, geographer, etc., whose duties included the acquiring and summarizing of large bodies of information much of which was geographic. The men who held these posts were commonly lawyers, physicians, priests, astronomers and engineers. Although some of these men traveled widely in New Spain (a larger entity than modern Mexico), most of them resided in Mexico City or in Spain and they acquired most of their data by questionnaires which had to be answered by all of the religious and political administrators among whom they were circulated. Although official requests for information were circulated in New Spain as early as 1525, it was not until the 135-point interrogatory of 1569/71, the 50-point questionnaire of 1579/82, and the chorographic study of 1570/81 by the protomédico Hernández and the royal geographer Domínguez, that detailed information (frequently accompanied by sketch maps) was available on the physical and human geography of Mexico. The relaciones geográficas which resulted from the survey of 1579/82 constituted the basis for most geographic descriptions of Mexico until the eighteenth century. The information so acquired was supplemented by charts of the coasts (made for military and naval purposes), periodic censuses (such as the many lists of tributary Indians, the census-estimate of families made by the cosmographer Villaseñor y Sánchez in 1742, and the 1792/94 censuses made during the viceroyalty of Revilla Gigedo and utilized by Humboldt in his classic work on Mexico), regional-economic studies made preliminary to the congregation of Indians at various times but especially 1593 - 1605, a series of studies 1765/86 in connection with reforms of the administration of New Spain, various special scientific expeditions in the 1780's and 1790's (such as that of Malaspina, and the royal botanical expedition), geologic and mining studies carried out by the Real Cuerpo de Minería under Fausto de Elhuyar

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1. This report was written by Donald D. Brand, Chairman of the Subcommittee on Mexico. The following persons in the United States assisted in the preparation of the report on Mexico: Prof. Carl O. Sauer, Chairman, Dept. of Geography, University of California, Berkeley, California; Prof. Daniel Stanislawski, Dept. of Geography, University of Texas, Austin, Texas; and Prof. Henry S. Sterling, Dept. of Geography, University of Wisconsin, Madison, Wisconsin. Also, considerable assistance was received from Prof. Rita Lopez de Llergo y Seoane, Director of the Institute of Geography of the Universidad Nacional de Mexico. In the early phases of the study, Dr. Jorge A. Vivo, Professor of Geography in the Universidad Nacional de Mexico, was helpful through providing various pertinent catalogs. More recently, some corrections were received from Sr. Ing. Ricardo Lancaster-Jones, Secretario General of the Junta Auxiliar de la Sociedad Mexicana de Geografia y Estadistica en el Estado de Jalisco.

2. The report is to be considered a preliminary one as information is incomplete on all the above topics.

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1788 -1821, reports on trade and resources by such groups as the Consulado de Vera Cruz and the City of Mexico, and by astronomic determination of positions and by sketch maps and compiled maps made by private individuals and by officials (especially military men and engineers). Although enormous quantities of "geographic" statistics were accumulated during the Spanish colonial period, there was little attempt at synthesis or compilation and practically none at analysis or interpretation. However, the first good (in terms of available information) map of Mexico was compiled in the seventeenth century by the great Mexican polymath Carlos Sigüenza y Góngora (1645 - 1700), and this map was copied in the eighteenth century by the greatest Mexican scientist of that century José Antonio Alzate y Ramírez (1737 - 1799). The only real attempt at a geographic compendium was that made by Alexander von Humboldt on the basis of his trip to Mexico 1803/04 and the maps and statistical materials made available to him. In summary, geography in Mexico during the colonial period was limited essentially to (1) the accumulation of political and economic statistics, and to (2) the improvement of cartographic materials. So far as we know no geography as such was taught in the schools of Mexico, although there was some instruction in cosmography. Neither were there any geographers in the modern sense, and the individuals with such titles as geographer and cosmographer were primarily mathematicians, astronomers, and engineers.

Early National Period. During the first part of independent national life (from the War for Independence 1810/21 to the end of the French Intervention 1862/67) the almost continuous disturbance of civil and foreign wars nearly nullified the invigorating effect of independence and the stimulus of contact with the rapidly expanding sciences of the early nineteenth century. The polished Mexican diplomat and scholar José María Justo Gómez, Conde de la Cortina (1799 - 1860), had been exposed to the embryonic modern science of geography while he had served as a Spanish diplomat in some of the European countries, and upon his return to Mexico in 1832 he established a free course in geography which was probably the first course in geography ever offered in Mexico. However, this course was of brief duration and we hear little more of academic geography for the next 30 years although Joaquín de Mier y Terán (1829 - 1868) was professor of geography in the Colegio de Ingenieros in 1853, and Corozco y Berra (mentioned later) was professor of geography in the Colegio Militar 1861 - 1862. In 1833 Gómez de la Cortina helped found and was the first president of the Instituto Nacional de Geografía y Estadística which was the precursor of the present Sociedad Mexicana de Geografía y Estadística (1850/51 -), of which he was also a founder and the first vice president. An examination of the publications of this organization (Boletín, first epoch 1839/66) shows that the colonial emphases on statistics and mapping continued to be paramount. Such a trend was only natural in a young nation which wished to evaluate its resources, plan their utilization and administration, and provide for the defense of the nation. The emphasis on statistics is brought out further by the fact that the first congress of the independent nation called for statistical studies to be made of each of the constituent entities. Unfortunately, at the time only one such study was made, that by Martínez Lejarza on the province of Michoacán which was published in 1824. This monograph remained the best regional study in Mexico for nearly half a century. The stress on mapping is indicated by the fact that the newly formed (1822) Cuerpo de Ingenieros Militares was immediately assigned the task of preparing the national and military map of Mexico. During this period individuals with the title of geographer (Ingeniero geógrafo) began to come out of the Colegio Militar and the Colegio de Minería (the successor of the colonial Escuela y Tribunal de Minas, later to become the Escuela Nacional de Ingenieros). While the colonial geographers were self-styled or so termed by courtesy and commonly were astronomers and mathematicians, the ingenieros geógrafos of

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the 1850's and thereafter had earned titles and were a combination of mathematician, astronomer, geodesist and topographer (surveyor and draftsman). Most of the so-called geographic work of the nineteenth century in Mexico was performed by men with training in the indicated fields. The earliest and among the greatest of the geographic engineers were José Salazar Ilarregui (1823-1892), Francisco Jiménez (1824 - 1881), and Francisco Díaz Covarrubias (1833 - 1889) who are best known for their work in surveying international boundaries, planning drainage enterprises, determining positions astronomically, and the like. Two other men, more truly geographers in the modern sense, appeared in this period although they produced important work after 1867. These were the topographic engineer Manuel Orozco y Berra (1816 - 1881) and the geographic engineer Antonio García Cubas (1832 - 1912). Orozco y Berra is so widely known as an historian, philologist, editor, bibliographer, encyclopedist, and lawyer, that his work as a bureaucrat, surveyor and geographer is often overlooked. It is of interest that most of his geographic work had to do with mapping distributions (such as Indian languages) and with the history of mapping in Mexico. Also, it is indicative of the attitude of his time that his Apuntes para la historia de la geografía en Mexico is little more than a history of exploration in Mexico and developments in the mapping of Mexico. García Cubas began as a topographic artist for the newly formed (1854) Ministerio de Fomento, and concentrated on preparing first a map of all Mexico and then an atlas composed of maps of the individual entities. Later García Cubas turned to writing regional geographic texts and compiling a great historical-geographical dictionary or gazeteer of Mexico. The discussion of this period might well be terminated by mentioning the French Commission Scientifique du Mexique 1864/67 which included plans for geographic work in its original organization but which accomplished nothing in geography, but little in geology, somewhat more in botany and archaeology, and most of all in zoology.

Scientific Renaissance. The next period, approximately 1868 - 1910, might well be termed the period of the Mexican Scientific Renaissance. In 1867 the Escuela Nacional Preparatoria was formed on the basis of earlier existing schools and shortly thereafter a course in geography was introduced. Elsewhere in Mexico chairs or courses in geography were established in various colegios (approximately of senior high school or junior college grade) such as the chair of Física y Geografía founded in 1869 in the Colegio de San Nicolás de Hidalgo (now the preparatory school of the University of Michoacán). Although these courses in geography were a far cry from modern geography, at least they were an improvement over the purely physical cosmographic courses; and apparently geography courses were now available for the first time to students other than those in military and engineering schools. Little real progress, however, was made in the teaching of geography until maestro Miguel E. Schulz (1851 - 1922) began to teach in the Escuela Nacional Preparatoria in 1882. During the period 1882 - 1922 Schulz, as professor of geography and history and as director of the school for a time, converted geography from a dull combination of cosmography and place geography into a subject which was made real and attractive through the blending of physical and cultural geography. In a very literal sense maestro Schulz was the founder of modern geography in Mexico; and he also was the teacher of most of the Mexican geographers who developed and directed the discipline in Mexico until some ten years ago.

The turmoil in Mexico between the death of Juárez and the coming to power of Porfirio Díaz in 1876 precluded much governmental activity in geography until that date. Through the sympathetic interest of the scholar-general Vicente Riva Palacio, while he was secretary of development (Fomento), there were initiated:

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1876 The Comisión de Cartografía, under Ing. Agustín Díaz, which was to care for and edit the official maps of the nation.

1877/78 The Comisión Geográfico-Exploradora de la República Mexicana, also under Ing. Agustin Diaz and jointly sponsored by the ministries of Fomento and Guerra. This commission was supposed to investigate the geography and natural history of Mexico and to prepare the national map. By the time it became defunct (about 1911/14) it had surveyed and issued maps (198 sheets on a scale of 1:100,000) which covered about one-fifth of Mexico.

1877 The Observatorio Meteorológico y Magnético Central, under the Jaliscan scholar and statesman Ing. Mariano Bárcena who remained as director until his death in 1899. By 1898/99 a fairly extensive network of thermo-pluviometric stations attended by federal telegraphers made possible the issuance of weather charts, and thus the Servicio Meteorológico Nacional came into being about 1900. This event was celebrated by holding in 1900 the first Mexican meteorological congress.

1877/80 The Observatorio Astronómico Central, which was under the direction of Ing. Angel Anguiano 1880 - 1899. A later director was the geographic engineer Valentín Gama (1868 - 1943).

1882 The Dirección General de Estadística, which during most of its formative years was under the scholar-statistician Antonio Peñafiel.

Schools, societies, institutes, congresses, laboratories and other organisms in many branches of knowledge were established during the remaining years of the Pax Porfiriana. Among the more important of these with some geographic bearing were: The Sociedad Científica "Antonio Alzate" 1884/85 - which began its Memorias y Revista in 1887, and which was to become the national scientific academy in 1930; The Comisión Geológica de la República 1886/88 - which began its Boletín in 1895, and which later became the Instituto de Geología attached to the national university in 1929; the XI meeting of the International Congress of Americanists which met in Mexico City in 1895; the Comisión Geodésica Mexicana formed in 1899 under Ing. Angel Anguiano, which in 1916 (when under the direction of Pedro C. Sánchez) was fused into the Dirección de Estudios Geográficos; the X International Geological Congress which met in Mexico in 1906; the Sociedad Michoacana de Geografía y Estadística which functioned actively from 1905 to 1912 in Morelia and issued eight volumes of its Boletín; and the welding together of various higher schools in Mexico City in 1910 to form the Universidad Nacional de México.

Throughout the Pax Porfiriana the earlier stresses on map making and on collecting and publishing statistics continued, but the influence of maestro Schulz set the foundations for modern geography.

The Modern Period. Towards the end of the Revolution (1910 - 1917) most of the governmental agencies which carried on geographic work were fused 1915/16 into the Comisión (soon termed Dirección) de Estudios Geográficos y Climatológicos under Ing. Pedro C. Sánchez and within the Secretaría de Fomento whose head at the time was the eminent engineer and geographer Pastor Rouaix. In 1934 this geographic office became known as the Dirección de Geografía, Meteorología e Hidrología, which title it bore until the cabinet changes of 1946/47 when hydrology was lost to the newly founded Secretaría de Recursos Hidraulicos. The mapping, geodetic and other work of

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this geographic bureau is outlined elsewhere. In 1921 the first Congreso Nacional de Geografía was held in Tacubaya; and from 1921 can be dated the revision in the Escuela Nacional Preparatoria of the system of teaching geography. This revision was initiated chiefly by Elpidio López; was inspired by contemporary French geographers such as Brunhes, Vidal de la Blache and de Martonne; consisted principally of an organization into Physical Geography, Bio-geography, and Human Geography; and within a few years this organization prevailed in most of the secondary and preparatory schools of Mexico.

Beginning with the establishment of the Comisión Nacional de Irrigación in 1926, there developed a very strong movement towards the forming of various governmental agencies primarily to study, plan and exploit various natural resources. These agencies have required base maps and various types of economic-geographic reports, and consequently the bulk of geographic work in Mexico is now being done by engineers, lawyers and economists in government service. In order to meet the challenge the national university has made several attempts in the 1930's and 1940's to train professional geographers for other than teaching positions, but so far only a few trained geographers have been developed.

Geography as a science or discipline in Mexico so far holds no generally accepted form, position, content or definition. A certain amount of physical and cultural geography (both general and regional) is taught in the primary, secondary, vocational, preparatory and normal schools but the preparation of the teachers in these various schools is not commonly that of a professional geographer. There is no group, association, society or other organization of geographers -- either of geography teachers or of researchers in geography.

MEXICAN GEOGRAPHERS

There is no satisfactory list of Mexican geographers. There is no society or association of professional geographers or of teachers of geography. Although there is a geographical society the membership includes many professions from lawyer and physician to soldier and politician, and probably not one member in twenty would call himself a geographer. The various biographies or directories of living Mexicans stress literary figures and individuals in the higher levels of state and federal government. Consequently few scientists and educators are listed. Apparently there are not a dozen living Mexicans who are listed as geographers. It is indicated that biographical and bibliographical organizations in Mexico might well devote attention to producing volumes on "Mexican Scientists", "Mexican Scholars", "Mexican Educators", and the like.

Persons who teach geography often are geographers, but there are many difficulties in following this approach. There is no national organization of geography teachers on any level or grade. Teachers in primary and secondary schools (the first nine years of schooling) commonly do not specialize, and a teacher of geography is equally a teacher of history or government or some other subject. In the vocational, normal and preparatory schools a person may teach only geography and be known as a professor of geography. Probably this group of teachers (roughly equivalent to high school teachers in the United States) contains the greatest number of people who are known as geographers, who call themselves geographers, and who write geography (usually textbooks). However, most of such teachers of geography have a very elementary command of geography and have not earned a higher degree in geography. This is not surprising since there are only two institutions in all Mexico which have depart-

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ments of geography in which geography is taught on a university level and in which master's and doctor's degrees can be earned. Higher degrees in geography (other than the engineering degree, which is essentially that of a civil engineer) were not earned until the 1930's, and the total number to date is so small that the possessors of such degrees cannot be considered as constituting the core of Mexican geography.

Even in the Escuela Nacional Preparatoria, and the various federal, state and private universities and schools of university rank there are few adequately prepared teachers of geography, and there are no full-time professional geographers. Not only are there no full-time positions as professors of geography, there are practically no full time professors (profesores de planta o de carrera) in any institution of higher education. Salaries are usually so low that a person must teach in two or three different institutions and in addition practice medicine or law, or write for several newspapers, or hold some government or other position, in order to make a living. It is not uncommon for a person to teach geography at one institution, history at another, perhaps French or English at yet a third school, hold some editorial position with a newspaper or magazine, and carry on a legal or medical practice in addition. In the case of such individuals it is difficult to determine either their profession or their business address. Furthermore, even when finances are not an important consideration, a geographer may teach in a number of institutions because there are not enough trained geographers to go around.

Since there are no full-time professional geographers in Mexico we must use a number of criteria in the determination of who should be included in a list of Mexican geographers. These criteria can be summarized as follows:

(1) Mere membership in the Sociedad Mexicana de Geografía y Estadística is not sufficient; one must be assigned to the sección de geografía. The same is true for the few other "geographic" societies in the republic.

(2) A person listed as "profesor de geografía" is considered to be a geographer unless it is evident that teaching geography is a minor avocation.

(3) All masters and doctors of geography are considered to be geographers, wherever such information is available. However, the majority of Mexican geographers do not possess such degrees.

(4) Persons in allied fields (such as geology, economics, bio-geography) are listed as geographers if they frequently participate in congresses of geography, geographic sections of congresses of the social sciences, and the like.

(5) Writers of textbooks in geography (both general and special).

The following list of Mexican Geographers has been compiled from various sources (chiefly printed) which differ greatly as to reliability, and completeness. It should be thought of as a preliminary list to which many names will be added and from which a number of names perhaps should be removed. The people who are listed fulfil one or more parts of the following definition: A geographer is a person who has a higher degree in geography, or who teaches geography, or writes geography, or carries out geographic research. An attempt was made to obtain information on the following points: Title of address, full name, where and when born, higher education and degrees, principal past occupations, present employments, principal topical and regional fields of research and writing, best professional address, home address. Some

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comments on these items of information are:

TITLE OF ADDRESS -- Señor or señorita presumably means that there is no earned title or degree such as engineer (Ing.), lawyer or attorney (Lic. or Abog.), etc. Infrequently encountered titles are given in full.

FULL NAME -- to eliminate confusion an attempt has been made to obtain both matronymic and patronymic, and the full surname has been capitalized.

WHERE AND WHEN BORN -- information not commonly found, and when found it is often erroneous. The birthplace often is given as the nearest large city to the community of actual birth.

HIGHER EDUCATION AND DEGREES -- the information usually is incomplete, confused, and unreliable. Many schools have changed name and status during the past years, and the same is true for titles, degrees, licenses, diplomas and the like.

PRINCIPAL PAST OCCUPATIONS -- from the point of view of geography.

PRESENT EMPLOYMENTS -- this information becomes out of date very rapidly especially for those in government service. At least every six years with the change in the national presidency there is much change in governmental organization and also in personnel. Since some of our published sources appeared prior to December 1946 - January 1947 (when most of the recent changes took place) there may be numerous errors of this type.

PRINCIPAL TOPICAL AND REGIONAL FIELDS OF RESEARCH AND WRITING -- most teachers of geography have no time for research since handling four or five jobs does not leave much leisure time. Most of the geographic research in Mexico is being done in the fringes or peripheries of geography by civil engineers, geologists, rural economists, geodesists, etc. About all that the teacher or professor of geography can manage is library or laboratory "research" of the "scissors and paste" type which results in a "new" regional or topical textbook.

BEST PROFESSIONAL ADDRESS -- that business address where the person is most likely to receive his mail.

HOME ADDRESS -- where known this is the only sure way of reaching a person by mail within a reasonable period of time. Where no address is given, the person lives in the Valley of Mexico, unless he is the author of a regional text.

NOTE: ABBREVIATIONS.

ENA -- Escuela Nacional de Agricultura
ENI -- Escuela Nacional de Ingenieros or Fac. de Ing., UNM.
ENP -- Escuela Nacional Preparatoria
ENS -- Escuela Normal Superior
UNM -- Universidad Nacional de México

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DG-UNM -- Departamento de Geografía, Universidad Nacional de México.
DGMH-SAF- Dirección de Geografía, Meteorología e Hidrología de la Secretaría de Agricultura y Fomento.
DGM-SAG - Dirección de Geografía y Meteorología de la Secretaría de Agricultura y Ganadería.

Profsa. María Consuelo AGUILAR, Viuda de Galvin. Tlalnepantla, Mex., 1892 -. High School geography.

*Ing. Emilio ALANÍS PATIÑO. Ciudad Hidalgo, Mich., 1905-. Ingeniero agrónomo ENA 1930; doctor en estadística, Univ. Roma, 1932. Studied agricultural-economic-geographic divisions of Mexico 1933 - 1937. Professor of statistics and of economic geography in the E.N.A., since 1933. Economic agricultural statistics, economic regions of Mexico. Escuela Nacional de Agricultura, Chapingo, Mexico.

Ing. Adolfo ALARCÓN MENDIZABAL. Economics of highway location.

*Profesor Ramón ALCORTA GUERRERO. Guerrero, S. L. P., 1912 - . At present professor of geography in the DG-UNM, the ENS, and the ENP, where he teaches human geography, historical and political geography, and physical geography. He has edited various geographic publications and at present is secretary of the Comisión de Geografía within the Sociedad Mexicana de Geografía within the Sociedad Mexicana de Geografía y Estadística. Probably Alcorta should be listed as primarily a cultural geographer, and as one of the few professional geographers in Mexico.

Octaviano ANDRADE GONZÁLEZ. Maestro en Ciencias Geograficas, UNM 1941. Thesis on: Elementos de Cosmografía y de Geografía Física.

Ing. Agustín ARAGÓN Y LEÓN. Jonacatepec, Mor., 1870 -. Ingeniero geógrafo, ENI.

Ing. Ignacio León de la BARRA. Ingeniero geógrafo, Colegio Militar.

*Prof. Carlos BENÍTEZ DELORME. Former professor of geography in the ENP. Wrote Geografía Humana, Social y Económica, 5th ed., Mexico, 1943.

Ing. Jose R. BENÍTEZ. Director of the Instituto de geografía, Universidad de Guadalajara; Author of various works in historical geography. Recently engaged on historical maps of Nueva Galicia. Instituto de Geografía. Universidad de Guadalajara, Guadalajara, Jalisco, Mexico. Home address: Parroquia 578, Guadalajara.

Ing. Carlos R. BERZUNZA DE LA VICTORIA. Teniente coronel. Professor of military geography in the Escuela Superior de Guerra, Villa Obregon.

Ing. Luis BLÁZQUEZ LÓPEZ. 1900 -. Physical geography; economic geology.

*Prof. Dr. Pedro CARRASCO. Badajoz, Spain, 1883 - . D. Sc., Univ. Madrid, 1905. Former professor and dean of school of sciences, Univ. Madrid. Astro-physics, geo-physics, astronomy, meteorology. Professor of mathematics, cosmography, physical geography, geophysics, and meteorology and climatology in the DG-UNM and in the ENS.

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Luis CASTELLANO. Geografía General, Mexico, 1939 (3rd grade text).

*Ing. Alfonso CONTRERAS ARIAS. Meteorologist and climatologist in the DGM-SAG. Probably the outstanding climatologist in Mexico. Research on relationships of wild and cultivated plants to climate; application of the Thornthwaite system of climatic classification to Mexico.

Prof. Aureliano CORRAL DELGADO. Professor of geography in the preparatory school and normal school of the Universidad de Sonora in Hermosillo, Sonora.

Ing. Jorge A. CUEVAS. Town planning.

Prof. Roberto DÁVILA LEÓN. Saltillo, 1897 - . Teacher in Mexico City. Author of an atlas of Mexico.

Ing. Alfonso DE LA O CARREÑO. Ingeniero topógrafo. Chief geologist (Ingeniero en jefe de geología), Secretaria de Recursos Hidráulicos. Professor of geophysical methods of exploration, ENI. Research in Mexican geophysics.

Prof. Daniel DELGADILLO. Cuauntitlán 1872 -. Former professor in the ENP. Numerous texts such as La Tierra 1940. El Distrito Federal 14th ed. 1944, Atlas Geográfico 1910, La República Mexicana; Geografía Elemental in 30th ed. 1947.

Presbítero Severo DÍAZ. Sayula, Jal., 1876 -. Religious orders and training in physics and mathematics in Seminario de Ciudad Guzmán. Past professor of astronomy, physics, mathematics, and cognate subjects in schools and universities of Guadalajara. At present chief of the Jaliscan meteorologic service. Numerous papers on tectonics of south western Mexico, recent vulcanism, climatology. Address: Garibaldi 440, Guadalajara, Jalisco.

Coronel de Ings. Francisco DÍAZ BABÍO. Former director of the Servicio Geográfico del Ejército Mexicano. Cartography.

Profa. Margarita DILLNER. Instructor of regional and physical geography in the DG-UNM.

Sara ENRÍQUEZ CASTAÑEDA. Maestra en ciencias geográficas.

*Ing. Alberto Escalona Ramos. Mexico City, 1908 -. Ingeniero Civil, ENI 1933. Professor of geography in the ENP and other schools of the UNM since 1927. Research in astronomical or mathematical geography, and in Mayan chronology.

Felipe FRANCO. Geografía de Puebla. Mexico, 1941.

Dr. Ing. Joaquín GALLO MONTERRUBIO. Mexico City, 1882 -. Ingeniero, ENI, 1908; D. Sc., UNM, 1932. Director of the Observatorio Astronómico de México since 1916. Former professor of mathematics, astronomy, and cosmography in ENP, ENI, DG-UNM, etc. Some research in meteorology.

Prof. Ramón GARCÍA RUIZ. Guadalajara, Jal., 1908-. Graduate of ENS in Mexico City. Federal education administration. The teaching of geography in primary schools.

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Margarita GARDUÑO NAVARRO. Maestra en Ciencias, Físicas, UNM, 1939. The thesis subject was: La Geografía Física en el Primer Año de Enseñanza Secundaria.

Prof. José C. GÓMEZ. Chief of the Servicio Meteorológico Mexicano, of the DGM-SAG, and professor of meteorology and climatology in the DG-UNM. Meteorologic tabulations and maps.

Prof. Amado GONZÁLEZ DÁVILA. Geografía de Navarit. Mexico, 1942.

Prof. Luis GONZÁLEZ TREVIÑO. Professor in the ENP.

Prof. Joaquín GUTIÉRREZ HERMOSILLO. Professor of physical geography in the ENP.

*Profa. María Teresa GUTIÉRREZ VÁZQUEZ. Instructor in meteorology and climatology in the DG-UNM.

Timoteo L. HERNÁNDEZ. Geografía del Estado de Nuevo León. 3rd Ed. Monterrey, 1943.

Prof. Gilberto HERNÁNDEZ CORZO. Instructor in statistics and demography in the DG-UNM.

*Ing. Horacio HERRERA. Ingeniero Civil. Chief of cartography in the DGM-SAG. Mapping of Mexico. Regional geography of the Rio Hondo basin.

Prof. Cayetano HIDALGO.

Ing. Ricardo LANCASTER-JONES. Secretary of the JAJ-SMGE, and great-great-great grandson of the English educator Joseph Lancaster. Working on a bibliography of Jaliscan geography. Office, Aptdo 675, Guadalajara, Jalisco.

*Dr. Luis LANZ MARGALLI. Hda. San Joaquín, Tam., 1907 -. Maestro en Ciencias Geográficas 1939 in the UNM with thesis: Ensayo geofísico del Estado de Tabasco. Licenciado en Economía 1941, UNM with thesis: Geografía económica del Estado de Tabasco. Doctor en ciencas geográficas, UNM 1942. Formerly professor of Economic Geography and Geography of Mexico in the DG-UNM, and economist in various governmental departments.

Presbítero José Trinidad LARIS. Guadalajara, Jal., 1884 -. Priestly orders in Guadalajara. Articles on historical-geography of Jalisco. Address: Reforma 573, Guadalajara, Jalisco.

Arquitecto Carlos LAZO JR. Mexico City, 1914 -. Arquitecto, UNM, 1939. Town planning; rural settlements.

Ing. Aurelio LEAL TREVIÑO. Villa de Mendéz, Tam., 1890 -. Ingeniero geógrafo, Colegio Militar. Former professor, ENP.

Albino LOPE J. Geografía del Estado de Yucatán, Mexico, 1931. Text for the third grade.

Prof. Elpidio LÓPEZ LÓPEZ. Astronomer, meteorologist and climatologist in Puebla and the Federal District. Later, professor of geography in the ENP and the ENS. In 1920's revised system of geographic instruction in ENP which soon spread over all Mexico.

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*Profa. Rita LÓPEZ DE LLERGO Y SEOANE. Wrote a thesis in 1928 on an aspect of the geography of the state of Tlaxcala. Professor of physical geography and cartography in the Escuela Nacional de Antropología e Historia and the ENS. Director of the Instituto de Geografía of the UNM since 1944. One of the chief cartographic draftsmen in government service in Mexico. Instituto de Geografía de la UNM., Palma No. 9, sexto piso, México, D. F. Home address: Calle 3, Numero 49, San Pedro de los Pinos, México, D. F.

Prof. Diego G. LÓPEZ ROSADO. Mérida, Yuc., 1918 -. Atlas histórico geográfico de México, 1940.

Manuel LÓPEZ y LÓPEZ. Maestro, 1938. Thesis on: Los elementos del clima.

Prof. José A. LOZANO. Professor of geography in the preparatory school of the Inst. Tec. y de Estudios Superiores de Monterrey, Nuevo León.

Prof. Manuel MALDONADO KOERDELL. Mazatlán, Sin., 1908 -. UNM; Univ. Washington, California, Kansas. One of the leading bio-geographers in Mexico. Colegio de México and E. S. de Ciencias Biológicas, Inst. Pol. Nac., Ethnobiology; history of biological sciences in Mexico. Home address; Culiacán 74, México, D. F.

Prof. V. M. MARTÍNEZ H. Human geography of Yucatán.

*Ing. Manuel MEDINA PERALTA. Ingeniero topógrafo. Chief of the Oficina de Geografía of the DGM-SAG. One of the leading cartographers and geodesists in Mexico. Home address: 3a. Miery Pesado 236, Colonia del Valle, México, D. F.

Prof. Angel MIRANDA BASURTO. Professor of educational geography in the ENS.

Prof. Mariano MIRANDA FONSECA. Monografía de la República Mexicana. Secondary text. 3rd ed. Mexico 1946.

Profa. María de los Angeles MOCTEZUMA. Professor of physical geography in the ENP.

Gabriel MOLIN V. Maestro en Ciencias Geográficas in 1939 in the UNM with thesis on: El Mediterraneo interamericano.

Capitan de corbeta Pedro MONTEJO SIERRA. Geopolitics.

Dr. Friedrich Karl Gustav MÜLLERRIED. L891 -. Professor of palaeobiology (Facultad de Ciencias) and of pre-history (Facultad de Filosofía y Letras) in the UNM. Palaeogeography and physical geography; regional studies in Chiapas, Guerrero, Coahuila, San Luis Potosí, etc. Home address: Avenida Mazatlán 208, Mexico, D. F.

*Ing. Manuel MUNOZ LUMBIER. Chihuahua, Chi., 1896 -. Ingeniero geólogo. Formerly seismologist, vulcanologist, petroleum inspector, inspector of mines, economic geographer. New chief of the Departamento de Estudios Económicos in the Secretaría de Economía Nacional (changed in 1947 to Dirección General de Estudios Económicos of the Secretaría de Economía). Vocabulary of the earth sciences; regional economic geography.

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Prof. José Vicente NEGRETE. Geografía del Estado de Jalisco. Mexico, 1926; new edition, 1947. Home address; Liceo 496, Guadalajara, Jalisco.

Ing. Ezequiel ORDÓÑEZ. Lerma, Mex. 1871 -. Ingeniero de Minas, ENI, 1892. One of the last of Mexico's field geologists of the nineteenth century. Home address: Abraham González 79, México, D. F.

Ing. Isidro G. OROZCO. Employed in the DGM-SAG.

Ing. Pascual ORTIZ RUBIO. Morelia, Mich., 1877 -. Educated ingeniero topógrafo, ENI. Past president of Mexico and governor of Michoacán. Constructed the best map of Michoacán up to 1910, and has written numerous articles on the geography and history of Michoacán. Home address: Ontario 505, Lomas de Chapultepec, México, D. F.

Ing. Gabriel ORTIZ SANTOS. Former director Insituto de Geografía, Universidad de Guadalajara. Topographer and geodesist. Mapping of the Lerma-Santiago strip.

*Dr. Bibiano F. OSORIO TAFALL. Doctor en Ciencias Biológicas, UNM. Teaches a course on Conservation of Natural Resources in DG-UNM. Marine biology, oceanography, fishing industry. Escuela Nacional de Ciencias Biológicas, I.P.N. (Laboratorio de Hidrobiología). Another address; Venustiano Carranza 25, 60 Pisco, México, D. F.

Ing. Felipe N. de PARRES. Chief Sección de Gravimetría, DGM-SAG. Geodesy, mapping.

Ing. Lorenzo R. PATIÑO. Director of the bureau for Conservación del Suelo y Agua in the Comisión Nacional de Irrigación 1942-1946, and since 1946 in the same post within the Secretaría de Agricultura y Ganadería.

Ing. Federico PEÑA AGUIRRE. Director DGM-SAG since 1946.

Ing. Estanislao PEÑA RODRIGUEZ. Director of the DGMH-SAF until 1946. Topographic engineer.

Agrónomo A. PÉREZ TORO. Director, Instituto Técnico Agrícola Henequenero de Yucatán. Climate of Yucatán.

Profesora Tulia QUIROZ AMADOR.

Lic. José María de los REYES. Professor of human geography in the ENP. Geografía humana, Mexico, 1946 (M. Porrua).

Profa. Dolores RIQUELME VÉRTIZ. Pasante en ciencias geográficas in 1945; teacher of cartography and Map Making and of Geography of Mexico in DG-UNM.

Prof. Jorge RIVERA ACEVES. Maestro en ciencias geográficas. Professor of Geology and Soils in DG-UNM.

*Ing. Ramiro ROBLES RAMOS. Ingeniero petrolero. Professor of Geology, Physiography and Soils in D.G.-UNM and professor of General and Mexican Geology in the ENS. Professor of Geology in the Facultad de Ingenieria, UNM, and in the Instituto Politécnico Nacional. Also geologist for the Secretaría de Recursos Hidraulicos (Jefe del Departamento de Coordinación y Cooperación, Jefatura de

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Geología). Address: Gelati 4, Tacubaya, D. F.

José RODRIGUEZ GONZÁLEZ. Geografía del Estado de Coahuila. Mexico, 1926.

Prof. Jesús ROMERO FLORES. La Piedad, Mich., 1885 -. Univ. Michoacana 1905. Educator, librarian, bibliographer, politician, historian. Wrote Geografía de Michoacan, 1931.

Ing. Pastor ROUAIX. Tehuacán, Pbla., 1870 -. Ingeniero topografo, ENI, 1898. Governor of Durango; Secretary of Development (Fomento) 1914-20, during which time the DGMH was organized under Pedro Sánchez. Contracting engineer. Geografía del Estado de Durango, Mexico, 1926.

Gen. Leobardo C. RUIZ. Pinos, Zac., 1892 -. Colegio Militar. Assistant director Colegio Militar; chief of aeronautics; minister to Japan and Spain; brigadier general. Military geography.

Ing. Manuel SALAZAR Y ARCE. Instructor in economic geography and in topography and cartography in the DG-UNM.

*Ing. Pedro Celestino SÁNCHEZ. Hda. San Nicolás Obispo, Poanas, Dur., 1871 -. Ingeniero de minas y metalurgista, ENI 1897. Formerly director Comisión Geodésica, Dirección de Estudios Geográficos y Climatológicos 1915/18 - 1934, DGMH-SAF. Director of the Instituto Panamericano de Geografía e Historia 1928/30 to date. Physical geography, geodesy, vulcanology and seismology of southern Mexico and Central America.

Gral. Manuel SÁNCHEZ LAMEGO, Servicio Geográfico del Ejercito.

Prof. Antonio SÁNCHEZ MOLINA.

Señor Guillermo SÁNCHEZ PATIÑO.

Lic. Francisco J. SANTAMARÍA. Cacaos, Tam., 1889 -. Geography of Tabasco.

Prof. Mario SANTOS DEL PRADO. Maestro en ciencias geográficas.

Profa. Sara SANTOS DE SAVIÑÓN. Maestra en Geografía.

*Ing. Enrique E. SCHULZ Y RICOY. Mexico City, 1875 -. Son of maestro Miguel Schulz. Taught geography in most of the institutions of higher learning in the Valley of Mexico, e. g., ENP 1905-1916, 1921 -; Escuela Normal para Maestros 1905-1916; Escuela Militar 1911-1914, 1921-27; Escuela Superior de Comercio 1919-; Facultad de Comercio 1931 -; etc. The date at which he became inactive is not known to us. He colaborated in the writing and edited many editions of his father's famous text Curso General de Geografía.

*Ing. Jorge L. TAMAYO. 1912 -. Ingeniero Civil. Has worked as an irrigation engineer for the government. Tamayo has written the best hydrography of Mexico to date, and also a good physical geography of Mexico. Heriberto Frias 613, México, D. F.

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Profa. María Elodia TERRÉS VILLASEÑOR. Born Mexico City. Maestra en Ciencias Geográficas 1938 with thesis on: Origen y Desarrollo de la Ciudad de México. Recently issued Geografía Física, Mexico, 1947.

Ing. Arturo de la TORRE. Professor of physical geography in the ENP and of the Geography of Mexico in the summer school of the UNM since 1945, succeeding Osorio Mondragon.

*Ing. Ricardo TOSCANO. Guadalajara, Jal., 1876 -. Ingeniero topógrafo. Professor of topography in such schools as the Facultad de Ingeniería of the UNM, the Instituto Politécnico Nacional, and the DG-UNM. Topographer in the DGM-SAG. History of cartography in Mexico.

Ing. Alfonso VACA ALATORRE. Engineer in the Servicio Geográfico del Ejercito, Dirección de Ingenieros, Secretaría de la Defensa Nacional.

Lic. Francisco VALENCIA R. Professor of Mexican Geography in the ENP.

Prof. Fulgencio VARGAS. Jaral del Progreso, Guato., 1875 -. Various articles on regional geography and history of Guanajuato.

Luis VARGAS PIÑERA. Chihuahua. Geografía Escolar. Mexico, 1930.

*Dr. Jorge Abilio VIVÓ. Habana, Cuba, 1906 -. Doctor in derecho civil y público, Univ. Habana, 1924; Maestro de Etnologia, Escuela Nacional de Antropología e Historia, 1942; Naturalized Mexican, 1943. Professor of geography in such schools as ENS 1937 -, Escuela Nacional de Antropología 1939 -, DG-UNM 1940-, Mexico City College 1947 -, etc. Vivó is chief of the department of Ethnology in the Escuela Nacional de Antropología, and is the executive officer in a number of the geography departments in which he teaches. He is the author of numerous texts, and has edited several geographic publications. Probably Vivó is the leading anthropo-geographer in Mexico.

Ing. Isidro VIZCAYA. Professor of geography in the Instituto Tec. y de Estudios Superiores de Monterrey, Nuevo León.

Ing. Paul WAITZ. 1876 -. Consulting geologist, Secretaría de Recursos Hidráulicos.

Profa. Esperanza YARZA CARREÓN. Maestra en geografía. Instructor in geography and meteorology DG-UNM.

Gral. Fernando ZÁRATE MENESES. Ingeniero Civil. Chief of the Servicio Geográfico Militar in 1947.

*Prof. Tomás ZEPEDA RINCÓN. Doctor en ciencias históricas; maestro en ciencias de la educación. La República Mexicana. Geografía Atlas, Mexico, 1934, Second edition, 1941.

Prof. Juan ZILLI. Geografía del Estado de Veracruz. Mexico, 1943.

The foregoing list is subject to much correction and analysis. Only a few of the teachers of geography in secondary and preparatory schools have been listed, and only a few of the authors of texts used in elementary and secondary schools have

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been named. Either there should be a much larger representation from these two groups, or they should be eliminated completely. Military and civil engineers (including surveyors, geologists, geodesists, astronomers, meteorologists, et al.) are much more apt to consider themselves geographers -- or at least to attend meetings of geographers -- than are individuals from the social sciences such as economists, historians, anthropologists, et al. This is because of the great stress that has been placed on mapping. Actually, there are a number of other engineers who probably merit mention as much as some of those included on the above list. In addition, there are many social scientists (especially statisticians and economists) who could be listed as properly as the various geologists and surveyors.

Since it is difficult to locate information as to the leading figures in the geographical sciences in Mexico it seems advisable to present here three special lists: Inactive, Active, Specialties. The first list includes men who have contributed importantly to geography in Mexico during the past forty years but who are now dead, retired, or only nominally active.

Retired, Semi-Active, Deceased

Rafael AGUILAR Y SANTILLÁN	1863-1940
José Guadaloupe AGUILERA SERRANO	1852-1941
Angel ANGUIANO	1840-1921
Agustín ARAGÓN Y LEÓN	1870-
Ignacio L. de la BARRA	
Manuel BRIOSA Y CANDIANI	1859-
Octavio BUSTAMANTE	1872-1939
Ezequiel A. CHÁVEZ	1868-1946
Daniel DELGADILLO	1872-
Severo DIAZ	1876-
Rosa FILATTI	1891-1943
Jesús GALINDO Y VILLA	1867-1937
Valentín GAMA	1868-1943
Antonio GARCÍA CUBAS	1832-1912
Pedro GONZÁLEZ GASCA	1853-1912
Elpidio LOPEZ LÓPEZ	
Joaquín de MENDIZABAL TAMBORRELL	? -1926
Miguel Othón de MENDIZABAL Y ROMANI	1890-1946
José Vicente NEGRETE	
Eduardo NORIEGA GALINDO	1853-1914
Ezequiel ORDÓÑEZ	1871-1949
Pascual ORTIZ RUBIO	1877-
Luis R. RUIZ	? -1948
José Luis OSORIO MONDRAGÓN	1885-1944
Antonio PEÑAFIEL Y BARRANCO	1839-1922
Rafael RAMOS PEDRUEZA	1897-1943
Gonzalo de REPARAZ	1860-1939
Pastor ROUAIX	1870-
Pedro SÁNCHEZ	1871-
Enrique E. SCHULZ Y RICOY	1875- ?
Miguel E. SCHULZ	1851-1922
Juan Manuel TORREA	1874-
Ricardo TOSCANO	1876-
Fulgencio VARGAS	1875-
Paul WAITZ	1876-

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In the second list are included those individuals who are most often mentioned whenever geographers or geography in Mexico is being discussed. Several of the individuals are not active at present, and at least half of the number are not primarily geographers. However, this is the nearest thing that we have to a list of the active professional or semi-professional geographers of university or equivalent rank.

Active Geographers and Related Scientists

Emilio ALANIS PATIÑO, agricultural economist
Ramón ALCORTA GUERRERO, human geographer
Carlos BENÍTEZ DELORME, human geographer
Pedro CARRASCO, astronomer and meteorologist
Alfonso CONTRERAS ARIAS, climatologist and ecologist
Alberto ESCALONA RAMOS, mathematical geographer
Ma. Teresa GUTIÉRREZ VÁZQUEZ, physical geographer
Horacio HERRERA, cartographer
Luis LANZ MARGALLI, economic geographer
Rita LÓPEZ DE LLERGO, cartographer
Manuel MEDINA, cartographer and geodesist
Manuel MUÑOZ LUMBIER, seismologist, economic geologist and geographer
Bibiano F. OSORIO TAFALL, bio-geographer, conservationist
Ramiro ROBLES RAMOS, geologist
Pedro C. SÁNCHEZ, geodesist
Jorge L. TAMAYO, hydrographer, physical geographer
Arturo de la TORRE, physical geographer
Ricardo TOSCANO, topographer, historical geographer
Jorge A. VIVÓ, anthropo-geographer
Tomas ZEPEDA RINCÓN, human geographer

Since most of the geographic research is sponsored by the government and since there are frequent shifts in employment and assignments, there are not many individuals who have been able to pursue one line of research consistently. The following list is very incomplete but it does give some indication of individuals from whom further information may be obtained.

Research Specialties

GEODESY, CARTOGRAPHY, COSMOGRAPHY — P. Carrasco, A. de la O Carreño, A. Escalona Ramos, J. Gallo, H. Herrera, R. López de Llergo, M. Medina, G. Ortiz Santos, F. N. de Parres, R. Robles Ramos, P. Sánchez, R. Toscano, A. Vaca Alatorre.

GEOMORPHOLOGY — VULCANOLOGY, SEISMOLOGY — L. Blázquez López, A. de la O Carreño, F. K. G. Müllerried, M. Muñoz Lumbier, J. Rivera Aceves, R. Robles Ramos, P. Sánchez, J. L. Tamayo, P. Waitz.

HYDROGRAPHY, OCEANOGRAPHY — L. Blázquez L., B. F. Osorio Tafall, J. L. Tamayo, P. Waitz.

BIOGEOGRAPHY, CONSERVATION OF NATURAL RESOURCES — A. Contreras Arias, M. Maldonado K., B. F. Osorio Tafall, L. R. Patiño.

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METEOROLOGY, CLIMATOLOGY — P. Carrasco, A. Contreras Arias, S. Díaz, J. C. Gómez, M. T. Gutiérrez V., E. López, J. A. Vivó.

BIBLIOGRAPHY — R. Alcorta Guerrero, R. Lancaster-Jones, J. Romero Flores, R. Toscano, J. A. Vivó.

ECONOMIC GEOGRAPHY — E. Alanís Patiño, G. Hernández Corzo, R. Dávila León, L. Lanz Margalli, M. Muñoz Lumbier, J. L. Tamayo.

HUMAN GEOGRAPHY — R. Alcorta Guerrero, J. R. Benítez, C. Benítez Delorme, J. M. de los Reyes, J. A. Vivó.

PEDAGOGIC GEOGRAPHY — R. García Ruiz, A. Miranda Basurto, S. Santos de S., T. Zepeda Rincón.

REGIONAL GEOGRAPHY — Nearly all geographers employed by the government are carrying out regional studies. Infrequently the academic geographers are able to get into the field. A few examples of regional interests are given here: BAJA CALIFORNIA and PACIFIC ISLANDS - Alcorta Guerrero, Osorio Tafall; DURANGO - Rouaix; QUINTANA ROO — Herrera; LERMA-CHAPALA — Escalona Ramos, Gonzalez Treviño; and SIERRA MADRE ORIENTAL — Müllerreid, Robles Ramos.

GEOGRAPHY IN GOVERNMENT AGENCIES

In this section are discussed all pertinent government agencies excepting governmentally supported schools and societies which are considered elsewhere. The Mexican government has supported geographic work chiefly along four lines: Mapping, statistics, field survey, and planning.

Mapping. Historically and consistently the greatest stress has been on mapping Mexico — for military and for economic reasons. Although the first attempt to map independent Mexico was made by the army in the 1820's, the bulk of mapping has been accomplished by non-military groups — mainly within the state department or ministry which has gone by such names as Fomento, Agricultura y Fomento, and at present Secretaría de Agricultura y Ganadería (SAG). In Mexico, as in most other countries, map making and map publishing agencies developed in many branches of the government. This naturally resulted in some duplication of effort, waste of money, and mapping of differing quality, scale, projection, etc. In 1925 an attempt was made to coordinate all official mapping in Mexico through the Consejo Directivo de los Levantamientos Topográficos de la República Mexicana, but very little was accomplished. Another attempt was made beginning in 1945 (under the auspices of the Comisión Impulsora y Coordinadora de la Investigación Científica), at which time was established the Comité Coordinador del Levantamiento de la Carta de la República. This coordinating committee consisted of representatives from the following governmental units:

Dirección de Geografía, Meteorología e Hidrología of the Secretaría de Agricultura y Fomento
Comisión Geografica Militar, Secretaría de la Defensa Nacional
Dirección General de la Armada, Secretaría de la Marina

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Comision Nacional de Irrigación
Departamento de Exploraciones, Petróleos Mexicanos
Oficina de Cartografía, Dibujo y Modelado of the Secretaría de Comunicaciones y Obras Públicas
Dirección de Minas y Petróleo, Secretaría de la Economía Nacional
Dirección de Educación Rural of the Rural of the Secretaría de Educación Pública
Sección de Limites y Aguas of the Secretaría de Relaciones Exteriores
Comisión Impulsora y Coordinadora de la Investigación Científica
Instituto de Geografía of the Universidad Nacional Autónoma de México
Instituto Panamericano de Geografía e Historia

The coordinating committee continues after a fashion, but very little real coordination or planning has been accomplished. The Institute of Geography of the National University of Mexico (which is strictly a research and technical institute, and which does no teaching) is the nearest approach to a coordinating center. Here a small group of cartographic draughtsmen, under the direction of the director of the institute -- Miss Rita López de Llergo, have collaborated with various governmental agencies. The main purpose of the institute is to provide maps superior to those now existing which can be used as adequate bases for distributional studeis.

The chief mapping agencies (field survey and/or manufacture and publication) in Mexico at present are:

Mexican Government:

Secretaría de Agricultura y Ganadería
    Dirección de Geografía y Meteorología
    Departamento Agrario (semi-autonomous)
Secretaría de la Defensa Nacional
    Servicio Geográfico del Ejército
Secretaría de Recursos Hidráulicos
    Jefatura de Irragación y Control de Rios
    Jefatura de Geología
    Dirección General de Aprovechamientos Hidráulicos
    Comisión del Rio Papaloapan (semi-autonomous)
    Comisión del Tepalcatepec (semi-autonomous)
Secretaría de Comunicaciones y Obras Públicas
    Ferrocarriles Nacionales de México
    Dirección Nacional de Caminos
    Oficina de Cartografía, Fotografía y Modelado
    Dirección General de Marina, Puertos y Faros
Secretaria de Economía
    Dirección General de Industrias Extractivas
    Dirección de Estudios Económicos
    Dirección General de Estadística
Secretaría de Relaciones Exteriores
    Sección Mexicana de Límites y Aguas (Com. Internat. de Límites y Aguas entre México y los E. U.)
Secretaría de la Marina Nacional
    Dirección General de la Armada

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Secretaría de Educación Pública
Instituto Nacional de Antropología e Historia
Dirección de Educación Rural
Secretaría de Salubridad y Asistencia
Secretaría de Governación
Dirección General de Población
Universidad Nacional Autónoma de México
Instituto de Geografía
Instituto de Geología
Petróleos Mexicanos
Departamento de Exploraciones

Non-governmental:

Instituto Panamericano de Geografía e Historia
Asociación Mexicana Automovilística
Compañía Mexicana de Luz y Fuerza Motriz
Compañía Mexicana Aerofoto, S. A.
Arzobispado de Mexico

Most of the actual survey and mapping in the field is done by engineers (civil, military, construction, hydraulic, topographic, geographic, geologic, mining, petroleum, and other titles) working for branches of the ministries of Agriculture and Animal Husbandry (SAG), National Defense (SDN). Hydraulic Resources (SRH), and Communications and Public Works (SCOP) -- and especially the first two. Topographic engineers and geodesists from one or another of these ministries do most of the actual field mapping for the other governmental departments, e. g., the SCOP and the SRH provide the technicians for the Sección Mexicana de Límites y Aguas of the Secretaría de Relaciones Exteriores in connection with surveys of boundaries and study of water resources. The Secretaría de Agricultura y Ganadería (SAG) is by law the governmental department which is entrusted with making geographic explorations, and most of the maps manufactured and published in Mexico are drafted, reproduced, printed, and published by the SAG -- chiefly in its Dirección de Geografía y Meteorología. In addition, the Oficina de Cartografía y Talleres (Talleres de Fotozincografía, Avenida Observatorio 192, Tacubaya, D. F.) of the DGM-SAG does the reproduction and printing of most of the maps published by other federal agencies. An example of distribution of work is the CARTA GEOLÓGICA DE LA REPÚBLICA MEXICANA 1:5,000,000, published in 1942 by the Instituto de Geología of the National University, edited (compiled, traced, corrected) by the Comisión Nacional de Irrigación (now the Secretaría de Recursos Hidráulicos), and printed in the Talleres de Foto-zincografía of the DGMG-SAF. Another government plant which prints many maps is the Talleres Gráficos de la Nación (the main government printing plant).

As mentioned previously, the earliest governmental mapping of Mexico was that carried out by army engineers for the military map of the republic. About 1854/56 there was added the compilation of civil maps of the republic and its constituent parts by García Cubas and other draftsmen in the Secretaría de Fomento. The maps and mapping programs of the Mexican government were in a most imperfect and confused state until a Comisión or Sección de Cartografía was established in 1876 in the Secretaría de Fomento to care for and to edit maps.

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In the next 30 years numerous governmental bodies were established to carry on exploration, mapping, and research in the various earth-sciences. These organizations (Comisión de Cartografía, Comisión Geográfico-Exploradora de República Mexicana, Observatorio Meteorológico, Comisión Geodésica Mexicana, etc) were fused into one body (1915/16) which was known for many years as the Dirección de Estudios Geográficos y Climatológicos, and later as the DGMH of the SAF and the DGM of the SAG. The ambitious program to map all of Mexico on a scale of 1:100,000 (carried out by engineers from the Secretaría de Guerra and from the Secretaría de Fomento between 1878 and 1914) resulted in the publication of some 199 maps by the Comisión Geográfico-Exploradora which covered about fifteen percent of Mexico. No attempt has been made to complete this map of Mexico.

In 1915 a series of state maps was begun and periodically these have been bound into atlases which constitute the last word in official cartography of Mexico. The most recent edition of the ATLAS GEOGRÁFICO DE LA REPÚBLICA MEXICANA is the 25th, issued in 1946, which has several maps of each state (in varying scales; 1:1,000,000 predominates), and which shows a total of 16,600 places. Also, special maps have been prepared of some entities (such as Zacatecas, Morelos, Jalisco, Aguascalientes, Yucatán, Tabasco, Chihuahua, Durango, Baja California, Tamaulipas, Puebla, Coahuila, Sonora, etc.) on scales varying from 1:50,000 (Morelos) to 1:500,000 (the most common: Zacatecas, etc.) and a few 1:600,000. Because of the earlier lack of sufficient geodetic controls, only the more recently completed maps can be considered to be good. There are three modern map series which attempt to cover all of Mexico consistently. In 1924 there was projected a Carta Geográfica de la República Mexicana on a scale of 1:500,000 which would cover Mexico in sheets of three degrees longitude by two degrees latitude. Work was started on this map in 1927 and it was completed in 52 sheets in 1942. These sheets are available bound together in an atlas. Unfortunately this map (which utilizes a polyconic projection as do most Mexican maps) is not based on accurate surveys. Since 1943/44 the Dirección de Geografía and the Instituto de Geografía have been working on an improved 1:500,000 map (also the same map 1:1,000,000) based on the trimetrogon photos taken by the United States Army Air Force, the Fuerza Aerea Mexicana, and other organizations (1942/43 principally) which cover all of Mexico. To date about 15% of Mexico has been mapped from the trimetrogon photos. The Servicio Geográfico del Ejército (the successor of the Comisión Geográfica Militar in 1946), which is entrusted with making the Carta Militar de la República Mexicana, has utilized the trimetrogon photos somewhat but is at present stressing vertical photographs and has now mapped some 5% of Mexico with the latest aerial photogrametric methods. The official wall map of Mexico is the Carta General de la República Mexicana 1:2,000,000, the first edition of which was issued in 1923, and which was in its 12th edition in 1948.

The mapping status of Mexico can be summarized as follows. Civil and military engineers do and have done the bulk of the mapping. This mapping has been and is oriented towards military and economic ends. The civil economic ends are principally: base maps for charting distributions, and maps which facilitate planning and utilization (maps of drainage basins, soil maps, communications maps, etc.). Until the last few years most maps lacked adequate geodetic control. There is no coverage of Mexico by maps having a scale larger than 1:500,000, nor by maps having contour lines. Although the DGM-SAG is in charge of national lands, there is no General Land Office nor Surveyor-General, and there is no rectangular system of surveying, marking and describing lands.

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A system of metes and bounds is used throughout most of Mexico. The coasts and coastal waters have not been adequately surveyed and charted, and United States Hydrographic Office and British Admiralty charts are widely used and copied. Most Mexican academic geographers have not the mathematical and mechanical instruction necessary for either the construction or the appreciation of projections and maps. Consequently, maps (the most characteristic tool and "sign manual" of a geographer) in Mexico belong more to the engineer than to the geographer.

Statistics. The Mexican government has shown its interest in statistics since its formative years, and there has been a central statistical organization since the 1880's. At the present time most of the ministries have their own specialized units for statistical studies such as the Dirección de Estudios Financieros of the Secretaría de Hacienda y Credito Público. Although courses in economic geography, statistics, and demography are sometimes taught by geographers, more commonly they are handled by economists, engineers, sociologists and physicians. Mexico at present has several distinguished statisticians (among whom might be mentioned Lic. Gilberto Loyo, Dr. Josué Sáenz, and Dr. Emilio Alanís Patiño), but not one is primarily a geographer.

Field Survey and Planning. Each presidential period of six years serves as a unit of time within which there are made certain field surveys preliminary to planning for various specified objectives. Although the general objectives ever since 1915/17 have been the improvement of the personal dignity and standard of living of the entire population through improvements in education, sanitation, communication and economic resources, there have been differences in topical and regional stress from one administration to another. Since the basic Mexican economy is agriculture, the greatest amount of attention has been given to surveys which would indicate the most pressing or desirable areas in which to develop irrigation projects, build roads, introduce electricity, drain swamps, etc. Nearly every governmental ministry, in addition to the Secretaría de Agricultura y Ganadería and the Secretaría de Recursos Hidráulicos, has one or more units which carry out field surveys, and other units which analyze the results of the surveys and prepare plans for presentation to the legislative and executive branches of government. In the various stages of field survey, analysis, and planning there are employed some geographers. Apparently to date most of these geographers have been assigned jobs of compiling and editing reports on economic regions or on specific commodities or industries. To the best of our knowledge at present only the Secretaría de Hacienda y Crédito Público employs persons under the official professional category of "geographer", within which category there are six grades.

In the following paragraphs is given an outline of the principal governmental agencies which carry on geographic research or sponsor geographic publications. "Geographic" has been used in a broad sense since it was considered better to include too much rather than too little. The order of consideration of governmental agencies is not particularly significant, although there is some attempt to list them according to the amount of geographic work accomplished. Wherever possible the latest titles or names of governmental units have been used, but there are some errors where we were unable to get a detailed statement of the post 1946/47 reorganization.

SECRETARÍA DE AGRICULTURA Y GANADERÍA. Entrusted by law with oversight of national lands, and the making of geographic surveys and exploration.

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DIRECCIÓN DE GEOGRAFÍA Y METEOROLOGÍA. The principal government agency for research and work in cartography, geodesy, meteorology and climatology.

DEPARTAMENTO GEOGRÁFICO. Through various subordinate offices (oficina, instituto, sección) carries out field surveying (both topographic and geodetic) and compiles, prints, and publishes maps. Together with branches of the Universidad Nacional and the Secretaría de Recursos Hidráulicos, looks after most of the leveling and triangulation, and studies of magnetism, gravity, earthquakes, and volcanoes. By 1946 some 200 positions had been astronomically determined, for the improvement of Mexican cartography.

SERVICIO METEOROLÓGICO MEXICANO. Administers a network of more than 1,300 stations; compiles daily weather forecasts and report; issues various maps, charts, tables, atlases, and monographs with meteorologic, climatologic, and ecologic content. Has abandoned De Martonne and Koeppen climatic classifications in favor of Thornthwaite's scheme.

Among the outstanding workers in the DGM are the engineers M. Medina, F. N. Parres, A. Contreras Arias, J. C. Gómez, and I. G. Orozco.

DIRECCIÓN GENERAL DE ECONOMÍA RURAL. Issues a valuable Boletín Mensual and sporadic monographs. Among the latter of outstanding geographic interest are a ponderous tome on the economic-agricultural regions of Mexico issued in 1934 and the four volume work by Foglio Miramontes on the Geografía Económico Agrícola del Estado de Michoacán published in 1936.

DIRECCIÓN DE TERRENOS NACIONALES.

DIRECCIÓN GENERAL FORESTAL Y DE CAZA.

DIRECCIÓN GENERAL DE CONSERVACIÓN DE SUELOS Y AGUA. Began study of soil conservation 1942 under CNI.

DIRECCIÓN GENERAL DE AGRICULTURA.

COMISIÓN NACIONAL DE COLONIZACIÓN.

DIRECCIÓN DE DISTRITOS DE RIEGO.

ESCUELA NACIONAL DE AGRICULTURA, Chapingo, México, México.

BANCO NACIONAL DE CREDITO AGRÍCOLA Y GANADERO, S. A. (Semi-autonomous). Has subsidized considerable research and publication including a commodity series of which the six volumes on EL TRIGO EN MÉXICO 1938-41 probably is the best.

DEPARTAMENTO AGRARIO (Semi-autonomous). Surveys, maps, and studies proposed ejidal areas. Probably the manuscript and blueprint maps of this department constitute the largest collection of detailed maps of Mexico since most of the maps are on scales of 1:20,000 and 1:30,000.

SECRETARÍA DE LA DEFENSA NACIONAL. Concerned with making and maintaining the military (strategic and tactical) map of Mexico.

SERVICIO GEOGRÁFICO DEL EJÉRCITO. Reformed in 1946 from Comisión Geográfico Militar which derived its personnel chiefly from

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the Corps of Engineers; now the SGE is a separate branch of the army on a par with the other services or armas. Works with the DG de Ingenieros in topography and with the D de Aeronautica (through the Escuadrón de Fotografía Aerea) in aerial photography. The SGE ranks second only to the DGM-SAG in making original surveys and maps. Field surveys are made by brigadas de geógrafos (who determine astronomic positions and make geodetic surveys), brigadas de topógrafos (who carry out trigonometric surveying and leveling), and members of the sección aerofotogrametría (who work with air photos). The sección de dibujo prepares the maps (chiefly on scales of 1:50,000 and 1:20,000) which are reproduced in the Taller Heliográfico. However, the seccion trabajos fotogrametria prepares maps (usually 1:100,000, except for some 1:500,000 of Michoacán, Colima and México) based on the air photos.

DIRECCIÓN DE ARCHIVO MILITAR. Includes valuable Library of the Army with numerous itineraries, sketch maps, and theses outlining geographic factors in utilization and defense of various terrains.

ESCUELA SUPERIOR DE GUERRA.

COLEGIO MILITAR.

ESCUELA MILITAR DE METEOROLOGÍA and SERVICIO METEOROLÓGICO DE EJÉRCITO.

SECRETARÍA DE RECURSOS HIDRÁULICOS. Formed in 1946/47 by expansion of the Comisión Nacional de Irrigación which was organized in 1926 as an autonomous department headed by the secretary of agriculture. In the past the CNI has done the best work in general surveying, hydrography, geology, and mapping of soils in Mexico.

JEFATURA DE IRRIGACIÓN Y CONTROL DE RÍOS.

DIR. GEN. DE ESTUDIOS Y PROYECTOS DE IRRIGACIÓN Y CONTROL DE RÍOS.

DIRECCIÓN GENERAL DE HIDROLOGÍA.

DIR. GEN. DE PEQUEÑA IRRIGACIÓN.

JEFATURA DE INGENIERÍA SANITARIA.

DIR. GEN. DE ESTUDIOS Y PROYECTOS.

JEFATURA DE GEOLOGÍA.

DEPTO. DE GEOLOGÍA GENERAL.

DEPTO. DE GEOHIDROLOGÍA.

DEPTO. DE GEOFÍSICA.

DEPTO. DE COORDINACIÓN Y COOPERACIÓN.

DIR. GEN. DE APROVECHAMIENTOS HIDRÁULICOS.

DEPTO. DE AGUAS NACIONALES.

DEPTO. DE ESTUDIOS DE SUELOS.

A large number of excellent studies of Mexican geomorphology, geology, soils, vegetation and other aspects of the natural landscape are to be found in the periodical IRRIGACIÓN EN MEXICO, which was replaced January of 1947 by INGENIERÍA HIDRÁULICA EN MEXICO. Many special reports have been issued on the meteorology, climatology, hydrography, geology, soils, etc., of various proposed irrigation or reclamation districts. Among geographically minded persons associated with the SRH are P. Waitz, A. De La O Carreño, and R. Robles Ramos.

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COMISIÓN DEL RIO PAPALOAPAN and COMISIÓN DEL RIO TEPALCATEPEC. These two regional (drainage basin) commissions are semi-autonomous governmental organizations patterned somewhat after the Northamerican Tennessee Valley Authority. However, although persons from many governmental organizations participate in the work of study and planning, the majority of the work and responsibility rests with the SRH since the major jobs of reclamation in these two basins are respectively draining and irrigating.

SECRETARÍA DE ECONOMIA. This ministry, along with SAG and SRH, controls most of the natural resources of Mexico, studies the best means for their exploitation, and maintains a statistical accounting of the status of the various resources and economies. Research and publications of geographic value appear from time to time in nearly all of the branches of this ministry.

DIR. GEN. DE ESTUDIOS ECONÓMICOS. This dirección studies natural resources and plans their use -- especially in the Sector or Oficina de Geografía Económica. This Office of Economic Geography was founded by Dr. Rosa Filatti (died in 1943) who had studied under French economic geographers at the Sorbonne. Perhaps the most important figure connected with this office was Ing. Manuel Munoz Lumbier who was associated with it from 1934 to 1941 and who was its chief from 1938 to 1941. The DGEE has published a number of regional studies in economic geography such as those on the states of Tlaxcala, Hidalgo, and Nyarit between 1933 and 1939.

DIR. GEN. DE ESTADÍSTICA. During its long history, under different names and ministeries, this bureau has handled all of the modern censuses and has published most of the statistical information available. Its current REVISTA DE ESTADÍSTICA is the single best source (monthly) on Mexican geography and economics as expressed in figures. On the basis of census information and the records kept in the Sección de Registro de Localidades are formed the maps which show the municipalities and districts which are the basic administrative units in Mexico. This information is the sole basis for the maps put out by the DGM-SAG which show municipal boundaries since the boundaries between municipalities are determined by state legislative action and description and not by survey in the field. The DGE also possesses a Sección de Cartografía y Gráficos which prepares small scale statistical maps. The forthcoming census of 1950 is causing the DGE much work in terms of preparing preliminary census-unit maps. This can be appreciated when it is realized that there are about 2,350 municipios (not like a Northamerican municipality but more like a township) and that 122,434 inhabited localities were censused in 1940 -- and most of these are not accurately located or properly bounded. Among miscellaneous geographic and statistical monographs of the DGE (formerly Departamento de la Estadística Nacional) might be mentioned Sonora, Sinaloa y Nyarit: Estudio Estadístico Económico Social published in 1928 and Puebla en Cifras issued in 1944.

DIR. GEN. DE INDUSTRIAS EXTRACTIVAS (formerly Dir. de Minas y Petróleo). Carries out some field work and mapping in connec-

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tion with location and possibilities of various mineral and petroleum claims and deposits. Maps showing locations of mineralized areas and mining claims issued chiefly by the Comisión de Fomento Minero. The Oficina de Investigación, Información y Publicided issues the BOLETÍN DE MINAS Y PETRÓLEO monthly, in which there are articles with geographic content. In 1944 the Oficina de Explotacion e Inspeccion issued the helpful list of elevations entitled Coordenadas geográficas y alturas en metros sobre el nivel del mar de las cabeceras municipales de la república.

DIR. GEN. DE ELECTRICIDAD and COMISIÓN FEDERAL DE ELECTRICIDAD.

DIR. GEN. DE INDUSTRIAS DE TRANSFORMACIÓN.

DIR. GEN. DE COMERCIO.

DIR. GEN. DE FOMENTO COOPERATIVO.

DIR. DE NORMAS OFICIALES. This is the equivalent of a Bureau of Standards.

SECRETARÍA DE COMUNICACIONES Y OBRAS PÚBLICAS.

DIRECCIÓN NACIONAL DE CAMINOS. A great deal of locational survey work and leveling is done by the Departamento de Proyectos y Estudios Técnicos, and a variety of statistics is compiled by the Oficina de Costos y Estadística. Some maps are prepared and published by the DNC.

FERROCARRILES NACIONALES DE MÉXICO. This heading includes such departments as Estudios y Proyectos in connection with the DG de Construcción de Ferrocarriles, and the Departamento de Ferrocarriles en Explotación (which includes most railways in Mexico) which contains a division that carries out economic studies.

OFICINA DE CARTOGRAFÍA, FOTOGRAFÍA Y MODELADO. The general office for tracing maps and making other graphic items.

DIR. GEN. DE MARINA, PUERTOS Y FAROS. Primarily concerned with building and maintenance of port and navigation facilities (docks, lighthouses, etc.), but prepares some charts, and issues coastal guides or pilots (in large part copied from foreign sources) such as the Derrotero de las Costas de la República Mexicana: Primera Parte. Litoral del Pacifico, 1939.

DIR. GEN. DE CORREOS Y TELEGRAFOS. There is no Mexican Board on Geographic Names, therefore the editors of the census (in the Secretaria de Economía) must consult their own Registro de Localidades, the Dirección de Educación Rural of the SEP, and the DGCT to obtain correct current spellings of place names.

SECRETARÍA DE LA MARINA NACIONAL. Until recently a dependency of the War Department and consequently not well developed. By law it must conserve and foment the fauna and flora in the rivers, lakes and coastal waters of Mexico. Consequently the navy is in charge of the Estación Limnológica de Patzcuaro (which has several series of publications) and the Dirección General de Pesca e Industrias Conexas. During the war the Mexican navy collaborated with the DGMH-SAF and the USN Hydrographic Office and US Coast and Geodetic Survey in preparing naval air charts of the Mexican coasts and in conducting some tidal investigations. The Dirección General de la Armada contains the trained topographic engineers and cartographers.

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SECRETARÍA DE HACIENDA Y CRÉDITO PÚBLICO. This secretariat is reported to employ professional geographers as such, but we were not able to obtain further information.

DIRECCIÓN DE ESTUDIOS FINANCIEROS.

DEPARTAMENTO DE BIBLIOTECA, ARCHIVOS ECONÓMICOS Y PUBLICATIONES. Contains an excellent library and map collection important to anyone studying the economic geography or the economic history of Mexico. Issued in 1946 the complete works in six volumes of the cultural geographer Miguel Othón de Mendizabal.

DEPARTAMENTO DE INVESTIGACIONES ECONÓMICAS. This department, in collaboration with others, has issued several state monographs such as that on Michoacán in 1940.

DIRECCIÓN DE CRÉDITO. Headed by the talented young statistician, Dr. Josué Sáenz.

LA NACIONAL FINANCIERA, S.A. Has studied and fomented a number of industries and economies.

CONTADURÍA DE LA FEDERACIÓN: OFICINA DE ESTADÍSTICA.

COMISIÓN NACIONAL DE INVERSIONES. Carries out areal and topical economic studies.

SECRETARÍA DE RELACIONES EXTERIORES.

COMISIÓN INTERNACIONAL DE LIMITES Y AGUAS entre México y los Estados Unidos de Norte America: Sección Mexicana. Also, a comparable commission for the boundary with Guatemala.

DEPARTAMENTO DE INFORMACIÓN PARA EL EXTRANJERO.

SECRETARÍA DE EDUCACIÓN PÚBLICA.

INSTITUTO NACIONAL DE ANTROPOLOGÍA E HISTORIA. Explores, surveys and maps prehistoric and colonial buildings, ruins, and ruin areas.

DIRECCIÓN DE EDUCACIÓN RURAL. Of geographic importance chiefly in the provision of information concerning names of remote rural communities.

DIR. GEN. DE ASUNTOS INDÍGENOS and INSTITUTO INDIGENISTA NACIONAL.

SECRETARÍA DE SALUBRIDAD Y ASISTENCIA. Various field studies in diseases, sanitation, water-supply, etc., which provide the basis for a medical geography of Mexico.

SECRETARÍA DE GOVERNACIÓN.

DIRECCIÓN GENERAL DE POBLACIÓN.

DEPARTAMENTO DEMOGRÁFICO.

DEPARTAMENTO DE MIGRACIÓN

DEPARTAMENTO DE TURISMO.

DIRECCIÓN GENERAL DE INFORMACIÓN.

UNIVERSIDAD NACIONAL AUTONÓMA DE MÉXICO.

INSTITUTO DE GEOGRAFÍA. Organized 1933/35 and headed by Ing. Jose Luis Osorio Mondragon until his death in 1944. For the first ten years the institute was housed in the Escuela Nacional Preparatoria, and was devoted to coordinating geographic instruction in the various branches of the National University, editing texts and atlases and publishing the REVISTA MEXICANA

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DE GEOGRAFÍA, providing consultation on geographic problems, and sponsoring such research as Possibilities for irrigation in the Valsequillo of Puebla (Osorio Mondragon 1934), The Nature of the Sierra Madre Oriental in the Huaxteca Potosina (Mullerried 1935), Lerma-Lake Chapala-Rio Grande de Santiago relationships (Escalona 1938, González Treviño 1939), etc. In 1944 Srta. Rita López de Llergo was appointed director of the institute which was converted into a center of investigations -- primarily work concerned with the improved cartographic representation of Mexico. The present address of the Instituto de Geografía is Palma 9, 6° piso, Mexico, D. F. The people who work in the institute (with title of assistant investigator -- ayudante de investigador) have background primarily in mathematics and physics and have completed course work leading to such degrees as master in mathematics, master in physics, topographic engineer, and civil engineer. In other words, the people who work in the institute and who thereby are being trained constitute a group of physical or mathematical geographers with little or no background in cultural geography but who are becoming the most competent cartographers in Mexico.

INSTITUTO DE GEOLOGÍA. In its earlier years, under a different title, this institute carried out most of the official geologic research (field and laboratory) in Mexico. However, since its absorption into the National University and coincident with the development of geological research in the CNI, the Institute of Geology has become rather inactive in the field. Under the new director Ing. Ricardo Monges López arrangements have been made with Petróleos Mexicanos to centralize in the institute all paleontological and mineralogical research. In addition the institute is continuing work in seismology, geomagnetism, and geophysical exploration, and collaborates with the DGM-SAG in such geodetic work as gravity studies and precise leveling. There is a considerable and valuable list of publications including ANALES, PARERGONES, BOLETIN, FOLLETOS, MAPAS, etc. In past years studies have been concentrated on such topical and regional fields as: General geology and resources of Baja California, The volcanic rocks of Mexico and their distribution, and The hydrogeology of northern Michoacán.

INSTITUTO DE BIOLOGÍA. The principal geographic work of this institute is in the study of the regional distribution of the flora and fauna of Mexico. At present it is collaborating with the Comisión del Papaloapan in study of the vegetation of that region. The institute has issued various publications including an ANNALES.

PETRÓLEOS MEXICANOS: DEPARTAMENTO DE EXPLORACIONES. During the years since 1938 when the Mexican government took over most of the petroleum industry in Mexico, nearly all of the field exploration for new pools and reserves has been carried on by this organization. Both field geologic surveys and reconnaissance from the air and also geophysical exploration are performed.

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INSTITUTO PANAMERICANO DE GEOGRAFÍA E HISTORIA. This Inter-American organization was organized 1928/30 and has had its headquarters ever since in Mexico City, with Ing. Pedro C. Sánchez as director. Until 1946/47 all of the work of the institute was centered in Mexico City (except that of the Cartographic Commission which was transferred to Washington, D. C.). However, at the present time the Mexico City office is concentrating on history including anthropology, and geographic work and publication (within the Comisión de Geografía) has been moved to Brazil with headquarters in Rio de Janeiro. The Publicaciones series of the I P G H contains much geographic material, especially on Mexico. A Revista Geográfica was published in Mexico City until 1946/47, of which 12 numbers appeared.

GEOGRAPHIC SOCIETIES

In Mexico, as in most of Latin America, geography and history and anthropology are commonly linked together -- either implicitly or explicitly. Consequently there are such organizations as Academia Nacional de Historia y Geografía, Instituto Panamericano de Geografía e Historia, and the Sociedad de Geografía e Historia de Michoacán. Furthermore, ever since the 1820's there has been such stress placed upon statistics that this technique and form for the organization of varied data has been elevated to the rank of a separate discipline whose name often appears in the title of learned societies. This is best exemplified in the oldest, largest and strongest geographical society in Mexico whose name whose name is Sociedad Mexicana de Geografía y Estadística. Although there are several provincial geographic societies in Mexico, not one has any national standing or high scholastic reputation. In other words, there is effectively but one geographical society in Mexico, and this society is truly national since it is partially sponsored and subsidized by the national government. Furthermore, corresponding members are elected from various parts of the republic, and the constitution of the society allows for the establishment of local branches -- such as the one functioning in Guadalajara.

SOCIEDAD MEXICANA DE GEOGRAFÍA Y ESTADÍSTICA. Address: Justo Sierra Número 19, México, D. F., México (Apartado Postal 10739). This society is the oldest geographical society in the Americas and one of the four or five oldest in the world. Under a different title (Instituto Nacional de Geografía y Estadística) it was founded in Mexico City in 1833. Ever since 1839, when formal governmental support was begun, much attention has been given to development of the map of Mexico and to the compilation and publication of statistics -- especially economic-political statistics organized by political entities. The principal publication is the BOLETÍN DE LA SOCIEDAD MEXICANA DE GEOGRAFÍA Y ESTADÍSTICA which was in its 66th volume and fifth series in 1948. The first number of the first volume of the first series appeared in March of 1839; the second number appeared in July of 1849; and the volume was completed in April 1850. The second volume also appeared in 1850, and there were several reissues of these two volumes in later years (3rd edition 1861/64) which caused considerable bibliographic confusion. Although presumably periodic actually the BOLETÍN throughout its history has been quite sporadic, e.g., within the current fifth series (which began with whole volume 27 in 1902) volume 33 appeared through the years 1914-1918, volumes 35 and 36 covered the years 1919-1927, and volume 43 appeared 1931-1934. Occasionally several numbers will be in press

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at the same time. In tomo VIII (whole number 34) of the fifth series, 1918/19, is an alphabetic author and geographic index to the bulletin up to 1918. An expansion of this index to 1946 has been compiled but has not been published.

Throughout most of Latin America, a geographical society is a combination of an academy of letters and arts, an academy of sciences, and an exclusive social club. This is essentially true for the SMGE whose membership is divided into sections for Geography, Statistics, History, Economics, and Sociology. These section titles do not truly represent the diversity of interests and occupations among the membership. Probably lawyers, physicians, engineers and military men make up more than three quarters of the membership, and geography is represented more as an avocation of a general or of a professor of history or of an architect than in the persons of professional geographers. Even the papers presented before meetings of the society or those published in the BOLETÍN are predominantly non-geographic -- less than one quarter of these papers could be listed as geographic. Sample titles of papers published in the BOLETIN (translated freely into English) are: The Musical Conquest of America by Spain, Mariano Elizaga and the Songs of Independence, Folklore in Mexico, Unedited Notes for the Bibliography of Printing in Morelia, The World Health Organization, The Count of Regla's House, The Goddess of Water and the Moon, and The Erection of the Diocese of San Luis Potosi and its Various Geographic Limits. According to the new constitution or statutes of 1946 the society has four classes of members: Active (restricted to qualified persons who live in the Federal District), Corresponding (qualified persons who live outside of the Distrito Federal), Honorary (Persons who have made distinguished contributions to one or another of the several disciplines mentioned above under sections), and Benefactor (persons who have aided the society financially, or who have materially promoted the study of the pertinent sciences). In 1947 there were some 500 active members carried on the rolls of the society, but only about one hundred were really active in terms of being paid up and of attending at least one or two meetings within a year. Of the total number of active members probably fewer than ten per cent could be termed geographers even in a loose or wide sense.

The purpose of the society is stated to be "the cultivation and development of the geographic, economic, statistical, historical and related studies or disciplines". The purpose is accomplished by some 16 itemized activities among which the most important are: periodic meetings, publication of the BOLETÍN, publication of works in the various pertinent fields, promotion and execution of investigations and explorations, sponsorship of learned congresses and conferences, organization of auxiliary groups, and collection and organization of pertinent materials (books, periodicals, maps, statistics, films, etc.). Meetings presumably are weekly. The bulletin has been discussed already. Over the years many books and monographs have been published or at least sponsored by the SMGE, among which the most recent are the items appearing in Temas de Mexico -- Serie Geografía such as Monografía del Río Hondo, Quintana Roo by Horacio Herrera which is No. 1 in the series. Within the Sección or Comisión de Geografía of the SMGE there are projected a dictionary of physical geographic terms, a bibliography of the geology and physical geography of Mexico, and the publication of an Anuario Geográfico Mexicano. The society has sponsored

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some small-scale field study in Coahuila, San Luis Potosí, the Mexican islands in the Pacific, and elsewhere, but to date the society has not shown itself to be interested in field geographic research. The SMGE has sponsored and organized two congresses of the social sciences (Primer Congreso Mexicano de Ciencias Sociales July 19-26 1941, and Segundo Congreso Mexicano de Ciencias Sociales October 12-31, 1945 -- both in Mexico City). Both congresses had special sections on geography, and the second congress produced a valuable set of published proceedings. Also, the SMGE played a part in the three Mexican geographic congresses (Congreso Nacional de Geografía) which have been held to date commencing with the first at Tacubaya in September of 1921. The third congress was held in Guadalajara in February of 1942, and a fourth one is being planned for the near future. Although there have been two meetings of the International Congress of Americanists in Mexico (1895, 1939) and one meeting of the International Geological Congress (1906), there never has been a Mexican meeting of the International Geographical Congress. Apparently the only "Junta Auxiliar" of the parent society is the one in Guadalajara. The members in Mexico City (which city is to the republic what a combination of Washington, New York, Chicago, Boston and Philadelphia would be to the United States of America) apparently do not believe that there are any real cultural values outside of the Valley of Mexico. The book, magazine and map collections of the society are among the best for any study of Mexican geography. There are some 15,000 volumes in the library, plus unedited manuscripts of great historical value, and some 10,000 pamphlets. The map collection contains more than 1,500 catalogued items -- chiefly of historical interest for Mexican cartography. The society has a series of medals given for meritorious work in the different social sciences among which are the "Medalla Francisco Díaz Cobarrubias" as Mérito Científico en Geografía, the "Medalla Barón Alejandro de Humboldt" al Mérito Científico en Demografía, and the "Medalla José Pérez Hernández" al Mérito Científico en Estadística.

In summary, the SMGE is the oldest learned society in Mexico, and is the nearest equivalent to a general and national academy of the arts and sciences. The appearance of the word "geography" in the name of the society is deceptive since geography is only one of many fields in which the society is interested.

There are only a few more societies which use the word "geography" in their titles. These will be mentioned next, after which will be listed those organizations whose membership, or investigations, or publications manifest more than casual relationship with or interest in Geography.

JUNTA AUXILIAR JALISCIENSE DE LA SOCIEDAD MEXICANA DE GEOGRAFÍA Y ESTADÍSTICA. This subsidiary of the Mexico City SMGE was founded in Guadalajara in 1864 by corresponding members of that society under the title JUNTA AUXILIAR DE LA SMGE EN EL ESTADO DE JALISCO. This branch was never very active, and it disappeared completely in 1914. However, it was refounded in 1916, and it commenced to publish its BOLETÍN in January of 1919. Volume I was issued in 1919-23, II in 1925, III in 1933-1934, and later volumes and numbers at somewhat less erratic intervals. The Junta was reorganized again in December 1949, and in 1950 brought out three issues of Volume IX of its Boletín, which contained "Descripción de la Provincia de San

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Pedro y San Pablo de Michoacán", one of the earliest geographic descriptions of that portion of Mexico. The mailing address is Apartado Postal 507, Guadalajara, Jalisco, Mexico. In recent years Pres. Severo Díaz has dominated the society and its publications. As is true for the parent society, there are very few geographer members. The BOLETÍN of the Junta is a rather "thin" publication with marked concentration on Jaliscan topics in history, literature, natural history, etc.

SOCIEDAD MICHOACANA DE GEOGRAFÍA Y ESTADÍSTICA, functioned actively in Morelia, Michoacán, from 1905 to 1912 during which time it published 8 volumes of its BOLETÍN. The articles in the bulletin were a melange of reprints from many sources and original articles -- nearly all of them on some aspect of the natural history, geography, or history of Michoacán. The intellectual and almost actual continuation of the SMichGE is the SOCIEDAD DE GEOGRAFÍA E HISTORIA DE MICHOACÁN which was founded in Morelia in the 1930's by a small group of professors, lawyers, physicians and engineers. This society issued sporadic LABORES, but apparently is not very active at present since several of the most energetic of the founders and first officers are now living outside of the state.

INSTITUTO DE HISTORIA, GEOGRAFÍA Y ESTADÍSTICA DE AGUASCALIENTES. Antecedents uncertain, but apparently a quasi-official organization in the state and city of Aguascalientes which has changed its name to SOCIEDAD DE HISTORIA Y ESTADÍSTICA DE AGUASCALIENTES. Reported to issue a BOLETÍN beginning in 1933.

COMISIÓN DE GEOGRAFÍA Y ESTADÍSTICA DEL ESTADO DE MÉXICO functioned as a survey and fact-finding organization about 1828-1833. By about 1850 it had become the SOCIEDAD DE GEOGRAFÍA Y ESTADÍSTICA DEL ESTADO DE MÉXICO, with headquarters in Toluca, which was operating in the 1880's as the SOCIEDAD GENERAL DE GEOGRAFÍA Y ESTADÍSTICA DEL ESTADO DE MÉXICO. The present status of this society or its successor in Toluca is unknown to us.

SOCIEDAD NUEVOLEONESA DE HISTORIA, GEOGRAFÍA Y ESTADÍSTICA or SOCIEDAD DE GEOGRAFÍA Y ESTADÍSTICA DE NUEVO LEÓN, in Monterrey, Nuevo León. Only second hand and unreliable information available concerning this society.

INSTITUTO PANAMERICANO DE GEOGRAFÍA E HISTORIA. Organized in 1928 as an inter-American scientific organization, and located in Tacubaya, D. F., under the directorship of Ing. Pedro C. Sánchez since 1930. Fomented geographic, geodetic, geologic, historical and anthropologic research and publication until recently. Although the general directorship and the library still reside in Tacubaya (Observatorio 192), D. F., México, several of the functions and publications have shifted to Brazil and the United States of America. Since 1946/47 there has been no active research or publication along geographic lines in the Mexican headquarters, especially since the Comisión de Geografía has headquarters in Rio de Janeiro, Brazil. Publications of geographic content included many of the PUBLICACIONES (1935-) and the REVISTA GEOGRÁFICA in 12 numbers and four volumes from 1941 to 1944 (actually issued in 1946). Among the editors and assistant editors of the RG while it was in Mexico were Pedro Carrasco, Manuel Medina, Luis Ruiz, and Jorge Vivó -- which represented the collaboration of the Departamento de Geografía of the National University.

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INTER-AMERICAN SOCIETY OF ANTHROPOLOGY AND GEOGRAPHY. This non-official inter-American society prints and distributes its organ ACTA AMERICANA (1943-) from Mexico City. However, the society itself and its publication are more anthropologic than geographic, and the geographers in Mexico have never affiliated with the IASAG as have the geographic societies of other American countries.

INSTITUTO DE GEOGRAFÍA DE LA UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. This academic research institution has been discussed previously. It is listed here merely because of its publication REVISTA MEXICANA DE GEOGRAFIA which appeared from 1941 to 1943 under the editorship of Osorio Mondragon. The articles in general were of geographic content but were on an elementary level comparable with material in the JOURNAL OF GEOGRAPHY.

INSTITUTO DE GEOGRAFÍA DE LA UNIVERSIDAD DE GUADALAJARA. Formerly headed by Ing. Gabriel Ortiz Santos, in charge of obtaining data for a map of Jalisco. Now directed by Ing. Jose R. Benítez, whose principal work has been a new map of Guadalajara, and preparation of historical maps of Nueva Galicia.

ACADEMIA NACIONAL DE HISTORIA Y GEOGRAFÍA. Founded in Mexico City about 1922/25 by the geographer Ing. Enrique E. Schulz, son of the great maestro Miguel E. Schulz. The membership is restricted to 60 active members, and the group seems to be a closed corporation made up of the older statesmen and military leaders of the Revolution plus a few carefully selected younger men. Among the better known geographically inclined members are Prof. Gen. Juan Manuel Torrea and Ing. Gen. Pascual Ortiz Rubio, who also are commonly among the officers of the academy. The current publication is the MEMORIA DE LA ADADEMIA NACIONAL DE HISTORIA Y GEOGRAFÍA, which began its second series or epoch in January of 1945. Most of the articles are historical. There have been reported a BOLETÍN and a REVISTA but we have no information concerning them.

GEOGRAFÍA ECONÓMICA DE MÉXICO, periodical of unknown provenience reported to have published 1:1 in February of 1941.

MAGAZINE NACIONAL DE GEOGRAFÍA E HISTORIA, periodical of unknown provenience reported to have been published monthly in Mexico City from July 1925 into the second half of 1926.

ACADEMIA NACIONAL DE CIENCIAS "ANTONIO ALZATE", known from 1884 to 1930 as the SOCIEDAD CIENTÍFICA "ANTONIO ALZATE" and since 1930 as the National Academy of Science. One of the sections into which the membership is divided is Sec. IX Ciencias Físico-Sociales which comprises History, Geography and Archaeology. This Academy has the largest and best selected scientific library in Mexico. The MEMORIAS Y REVISTA (1886 to date) are an important source for geographic information on Mexico, second only to the bulletin of the SMGE.

Besides the publications of the above listed societies, academies and institutes, and those of various government agencies mentioned in the previous section, there are a few more periodicals that might be mentioned here as occasional sources of fairly good geographic material.

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AMERICA INDÍGENA and BOLETÍN INDIGENISTA. Instituto Indigenista Interamericano, Liverpool 2, Mexico, D. F. 1941-

ANALES DE LA ASOCIACIÓN DE INGENIEROS Y ARQUITECTOS DE MÉXICO. 1892-

ANUARIO DE LA COMISIÓN IMPULSORA Y COORDINADORA DE LA INVESTIGACIÓN CIENTÍFICA. 1943-

BOLETÍN DE LA ASOCIACION GEOFÍSICA DE MÉXICO. 1929-

BOLETÍN DEL CLUB DE VIAJES PEMEX and PEMEX TRAVEL CLUB BULLETIN. Petróleos Mexicanos. 1940-

CAMINOS. 1938-1940. Merged (?) with REVISTA de INGENIERÍA (1937-) SCOP.

CUADERNOS AMERICANOS. 1942-

EL ECONOMISTA DEL INSTITUTO DE ESTUDIOS ECONÓMICOS Y SOCIALES. UNM.

EL TRIMESTRE ECONÓMICO DEL FONDO DE CULTURA ECONÓMICA. 1934-

INGENIERÍA. FACULTAD NACIONAL DE INGENIEROS. UNM. 1927-

MAPA. REVISTA DE TURISMO. Asociacion Mexicana Automovilística. 1933/34-

REVISTA MEXICANA DE INGENIERÍA Y ARQUITECTURA. Órgano de la Asoc. de Ingenieros y Arquitectos de México. 1923-

REVISTA DE LA SOCIEDAD DE ESTUDIOS ASTRONÓMICOS Y GEOFÍSICOS. 1929-

SOCIAL SCIENCES IN MEXICO AND SOUTH AND CENTRAL AMERICA. 1947-

GEOGRAPHIC EDUCATION

Education in geography in Mexico is more widespread or extensive but less intensive than in the United States of America. Most schools in Mexico are run by the government (federal and/or state), and both governmental and private schools are subject to the same curricular regulations. Schooling consists of six years of elementary or primary work, and three years of secondary followed by two years of university preparatory, or five years taken entirely in preparatory school. Some individuals may go directly from primary to various vocational schools, and graduates of secondary schools may go to the normal schools. Graduates of normal schools (with diploma or title of maestro normalisto or teacher) and graduates of preparatory schools (commonly termed preparatoria or colegio) with the bachelor's degree may enter the various higher schools (escuela superior or escuela nacional) and colleges (facultad) within a university or of university caliber. In this connection it must be kept in mind that a bachelor's degree (bachillerato) or a normal school title of maestro is equivalent to about four years of United States high school plus one year of college; that a higher degree of maestro en geografía (for example) represents about the same total amount of academic work as a B. A. degree with major in geography; and that a Mexican doctorate in letters represents about the same attainments as a master's degree with thesis in the United States.

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Primary schooling is arranged in three cycles of two years each. Geographic instruction begins in the first cycle, which comprises the first and second years, with simple "home geography" taught by the teacher without a textbook through pointing out local relationships. Formal geographic instruction, with textbooks, begins in the second cycle which includes the third and fourth years. In the third grade the pupil is taught the geography of his federal entity (state, territory, or the Federal District), and in the fourth grade he is taught the geography of Mexico. The comparatively few students who go on to the third cycle (fifth and sixth grades) are taught the geography of the Americas and of the Old World. Altogether, during the primary schooling the attempt has been made simply to teach place or locational geography. The primary school teachers commonly have very little specialized training and are general teachers rather than specialists in any discipline.

Geography is required in each year of secondary school, and these courses are taught with textbooks and by teachers who have had some specialized higher education in geography. A number of the secondary and preparatory school teachers even hold diplomas or degrees in geography. In the first year of secondary school the concentration is on Physical Geography -- cosmography, physiography, weather and climate, hydrography , and biogeography. The second year or course is devoted to Cultural or Human Geography -- natural and cultural regions, demography, natural resources and economies, transportation, political geography. The third year is a somewhat detailed study of the Geography of Mexico -- location and relationships, physiography, climate, hydrography, soils and vegetation, population (gross, linguistic, racial), economy, and political structure. These three subjects are given in the same order in the first three years (secondary portion) of a five-year preparatory school. We are not quite certain as to what courses are elective and which are required in the last two years of preparatory school. Apparently in some schools there is further work in physical geography or cosmography and in human geography or economic geography, and this is commonly done with illustrations from and a stress on Mexico. All this means that every high school student in Mexico has at least three years of geography, while it is rare for a high school student in the United States of America to have as much as one course in geography.

Higher education in geography is uncommon in Mexico. There are a number of higher schools and universities where one or two courses in geography may be had, but these courses usually are about the same as some of the courses offered in preparatory schools. Therefore it is correct to say that there are only two institutions in Mexico where higher education in Geography is available: the Department of Geography in the National University and the Department of Geography in the Advanced Normal School -- both in Mexico City. The geographic instruction in these two institutions is an outgrowth of the work of such famous masters (maestros) as Miguel E. Schulz, Eduardo Noriega, Enrique E. Schulz, Jesús Galindo y Villa, and Elpidio López -- who dominated geographic instruction in the Escuela Nacional Preparatoria and in the other branches of the National University (after its re-incorporation in 1910) for two long generations (about 1870's to 1930's).

UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. This is the largest and best university in Mexico. Although some pretense is made that this is the lineal descendent of the colonial royal and pontifical university of Mexico (1551/55-1833/65), actually this university existed from 1810 to 1865 in name only, and in 1865 was broken into six schools. Much later, in 1910, a number of higher

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schools were united into the Universidad Nacional de México under the Secretaría de Educación Pública. In 1929 the university was reorganized, new elements were added, and the university was made independent of the SEP and its name was changed to Universidad Nacional Autónoma de México. In later years, especially 1929/30, 1933/35, 1942/43, and 1945/46, there have been considerable changes in names, organization, and curricula. At present the university is divided into three main types of sub-organizations:

Preparatory
Escuela Nacional Preparatoria

Advanced Instruction
Facultad de Filosofía y Letras (founded as Fac. de Altos Estudios 1910-1924)
Facultad de Ciencias
Escuela Nacional de Economía
Escuela Nacional de Comercio y Administración
Escuela Nacional de Ingeniería
Escuela Nacional de Medicina

Research and Service
Biblioteca Nacional
Observatorio Astronómico Nacional (including magnetic station)
Instituto de Geología
Instituto de Biología
Instituto de Estudios Sociales
Instituto de Geografía
Instituto de Geofísica (February 1949-) and various other research institutes

Escuela de Verano (Summer School founded in 1921)
and various other divisions (escuelas and facultades)

ESCUELA NACIONAL PREPARATORIA. This school, founded 1867 on the basis of old religious schools such as the Colegio de San Ildefonso, is located at Calle de San Ildefonso 33, México, D. F. Recently (about 1943) it has incorporated the Escuela de Iniciación Universitaria and consequently provides five years of work: three of secondary and two of university preparatory leading to a bachelor's degree. The program of Physical Geography, Human Geography, and Geography of Mexico offered in the first three years is standard over most of Mexico since the other preparatory schools commonly follow the educational lead of the ENP. There are two types of bachelor's degree or bachillerato, one leading to graduate work in sciences and the other to advanced work in letters and arts. The most distinguished teachers of geography in Mexico have taught in the ENP, and after the ENP became a part of the National University many of them also taught in one or more of the schools and faculties of the university. Among the more famous and influential of the ENP teachers were Juan de Mier y Terán, Miguel E. Schulz, Eduardo Noriega Galindo, Enrique Schulz y Ricoy, Jesús Galindo y Villa, Daniel Delgadillo, José Luis Osorio Mondragon, Carlos Benítez y Delorme, and Elpidio López López. Beginning with Miguel E. Schulz in 1882 geographic instruction and philosophy was markedly influenced by the German school and to a slightly lesser degree by the French school of geography. Through the Spanish writings of Miguel Schulz, and his son Enrique Schulz, German geographic thought was made available to Mexican students. However, since the second language of most of the Mexican scholars and students was French, French geographic thought exerted a more direct influence and in time dominated the texts and teaching in Mexico. Only during the past ten or twelve years has there been a weakening of the French domination, and now American-English and German geography and geographic texts appear to be dominant.

Among the present or recent professors of geography in the ENP are: Ramón Alcorta Guerrero, Alberto Escalona Ramos, Luis González Treviño, Joaquín

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Gutiérrez Hermosillo, Aurelio Leal Treviño, María de los Angeles Moctezuma, José María de los Reyes, Arturo de la Torre, and Francisco Valencia R.

FACULTAD DE FILOSOFÍA Y LETRAS (1910-1924-). Address: Ribera de San Cosme 71, México, D. F. Beginning at some uncertain time after 1910 one or more geographic courses of cultural content were taught in this college. However, it was not until about 1942 that a formal department of geography was organized by transfer from the Facultad de Ciencias. The earlier Departamento de Geografía in the Facultad de Ciencias was the first department of Geography in Mexico where higher degrees could be earned in geography. These degrees were known as Maestro en Ciencias Geográficas and Doctor en Ciencias Geográficas. Unfortunately, we have not been able to obtain dates of organization of the department and of granting of the first degrees, nor the names of the professors and of the degree candidates. Apparently there were two or three doctor's and perhaps ten or a dozen master's degrees given in the period about 1938 to 1942. The new DEPARTAMENTO DE GEOGRAFÍA of the FACULTAD DE FILOSOFÍA Y LETRAS has been fairly active since 1943. From 1943 until 1948 the head of the department was the engineer and architect Luis R. Ruiz who died in 1948. At present the department is headed by an administrative committee consisting of two men: Jorge Vivó and Ricardo Toscano.

According to the catalog (Anuario del Departamento de Geografía) for 1949, the staff and offerings are as follows:

Profesor Ramón Alcorta Guerrero -- Geografía Humana; Geografía Historica y Política.
Profesor Pedro Carrasco -- Meteorología y Climatología (assisted by María Teresa Gutiérrez); Cosmografía; Introducción a la Geofísica.
Profesora Margarita Dillner -- Geografía Regional.
Profesor José C. Gómez -- Laboratorio de Meteorología y Climatología (assisted by Dolores Riquelme Vertiz).
Profesor Carlos Martínez Becerril -- two courses in mathematics.
Profesor Bibiano Osorio Tafall -- Conservación de Recursos Naturales.
Profesora Dolores Riquelme Vertiz -- Cartografía y Dibujo Cartográfico; Geografía de México.
Profesor Ramiro Robles Ramos -- Geología y Fisiografía; Laboratorio de Geología y Suelos (assisted by Jorge Rivera Aceves).
Profesor Manuel Salazar y Arce -- Geografía Economica; Laboratorio de Topografía y Cartografía.
Profesor Ricardo Toscano -- Topografía y lectura de mapas; Introducción a la Fotogrametría.
Profesor Jorge A. Vivó -- Geografía General; Ingles Técnico; Geografía de America; Biogeografía y Antropogeografía (given in the Escuela Normal Superior); Historia de las Ciencias Geográficas (also given in the Escuela Normal Superior); Historia de las Ciencias Geográficas (also given in the Escuela Normal Superior).
Profesora Esperanza Yarza Carreón -- listed but without specific courses.
Profesor Gilberto Hernández Corzo -- listed as an assistant, but offers Estadística y Demografía.

The general program of studies consists of three years of course work (above the bachillerato) leading to the master's degree in geography (Maestro en Geografía), and an additional year beyond the master's and a thesis leading to the doctor's degree in geography (Doctor en Letras especializado en

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Geografía). A person who has completed course work satisfactorily but who has not presented a thesis and passed a professional examination for the master's degree is known as a pasante. The three years of course work for the master's degree consist of 32 semester hours of non-geographical work (Elective 12, English 8, Mathematics 8, Geology 4) and 54 semester hours (13 year-courses) of geographic work distributed as follows:

Introductory (General Regional, cosmography)	12 hours
Cartography (Cartography and Drawing, Topography and Map reading)	8 hours
Meteorology and Climatology	4 hours
Human Geography, Biogeography and Anthropogeography, Statistics and Demography	14 hours
Historical and Political Geography	4 hours
Economic Geography	4 hours
Geography of America, Geography of Mexico	8 hours

The additional work for the doctorate consists of six year-courses totaling 26 semester hours (History of the Geographic Sciences, Introduction to Photogrametry, Introduction to Geophysics, Laboratory in Meteorology and Climatology, Laboratory in Topography and Cartography, and Laboratory in Geology and Soils), a research thesis (tesis de investigacion), and a professional examination.

The Department of Geography possesses a small map collection and library, and also has laboratories of cartography, cosmography, meteorology, and geology. In addition it makes use of the facilities of the National Meteorologic Observatory, and of the Department of Photogrametry of the Secretaría de Recursos Hidráulicos. Furthermore, there are very close relationships with the Escuela Normal Superior even to using several of the same professors and courses. The academic year lasts from February/March to October/November, and is divided into two semesters with very little break between. Practically all of the courses offered in geography are given in the afternoon after three o'clock (excepting Saturday morning laboratory), and more than half are given after five in the afternoon. This is partly because of other duties of the professors, but principally because most of the students are taking course work in addition to full time jobs.

It should be stressed here that full time professors who devote all of their time to but one university or institution are still very rare in Mexico as elsewhere in Latin America. The University of Mexico has a few profesores de Carrera and profesores universitarios de tiempo completo but there are none so far in geography. All of the teachers of geography are ordinary professors (profesores ordinarios) or they are teaching assistants (ayudantes de catedra), and in all cases they hold other positions with other institutions. Because of teaching a variety of subjects in a number of institutions, and because of the travel involved, the professors seldom have time to adequately prepare their lectures and to keep up-to-date in their fields, and practically never do they have time or money to carry out field investigations. Furthermore, there is little opportunity for the student to discuss his problems at length with the professor. It is indicated that in geography, and in other fields, there be a number of full time professors with adequate salaries who can devote themselves wholeheartedly to teaching, preparation, and research, and also that scholarships be arranged for deserving students so that time and

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money are available for true graduate work on the seminar and field-research levels.

OTHER BRANCHES OF THE NATIONAL UNIVERSITY. Some geographic instruction is given in other schools and faculties of the university, and the men who give these courses commonly have nothing to do with the departments of geography in the Escuela Nacional Preparatoria and Facultad de Filosofía y Letras. Among the schools having one or more goegraphic courses, but no full curriculum, are: Facultad de Ciencias, Escuela Nacional de Economía, Escuela Nacional de Comercio y Administración (where Eduardo Noriega once taught), Escuela Nacional de Ingeniería, and the Escuela de Verano. In the Summer School there has been at least one course on Mexican Geography, commonly given by a professor from the ENP, given every year since 1921. Among the professors have been: Carlos Benítez Delorme, Jesús Galindo y Villa, Enrique Schulz, José Luis Osorio Mondragon 1927-1944, and Arturo de la Torre since 1945.

The ESCUELA NORMAL SUPERIOR is not a part of the University and it is under the Secretaría de Educación Pública, but there is a close working relationship with the Department of Geography of the UNAM. Under a different title this higher normal school was founded in 1936 to prepare teachers for the secondary schools of Mexico. Under the present title since 1942, the ENS has adjusted its curriculum to that of the DG of the UNAM, and a degree of Maestro en Geografía is awarded. In the catalog for 1947 were listed the following professors and courses:

Profesor Pedro Carrasco -- Mathematics; First course in Physical Geography; Cosmography.
Profesor Ramón Alcorta Guerrero -- Second Course in Physical Geography.
Profesora Rita López de Llergo -- Third Course in Physical Geography.
Profesor Jorge A. Vivó -- First and Second Courses in Human Geography; Physical and Human Geography of Mexico; History of the Geographic Sciences.
Profesor Ramiro Robles Ramos -- General Geology and Geology of Mexico.
Profesor Agustín Cue Canovas -- Sociology.
Profesor Miguel A. Quintana -- Economics.
Profesor Angel Miranda Basurto -- The Teaching of Geography.
Not named -- a course on Conservation of Natural Resources.

Besides the branches of the National University and the Superior Normal School, there are several other institutions of higher education in the Valley of Mexico where geography above the secondary level is taught. These institutions will be mentioned briefly in the next paragraphs.

ESCUELA NACIONAL DE ANTROPOLOGÍA E HISTORIA (under the Instituto Nacional de Antropología e Historia, which is a branch of the SEP). Address: Moneda 13, México, D. F. This school, and the geographic work offered in it, originated in the Instituto Politécnico Nacional where it was located 1937-1940. Since 1940 it has has approximately its present organization and location. This school holds from February to November and is organized on the semester basis. It is of interest that Vivó (already mentioned as geographer at Department of Ethnology in the ENAH, where he teaches Advanced Geography and General Anthropo-geography -- which are basic required courses for practically all curricula such as physical anthropology, ethnology, archaeology, and linguistics. Also listed in the

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current catalog (for 1948) are Profesora de Cartografia Rita Lopez de Llergo, and Profesor Pedro Armillas who teaches a course in Topography and Cartography.

INSTITUTO POLITÉCNICO NACIONAL. This institute is actually a sprawling university comprising many schools founded and brought together since 1922 -- especially 1931-1937. There has been a decentralizing movement since 1944 followed by recentralization 1948/49. This is now the second largest university in Mexico. At present, six pre-vocational schools, and branches in some of the states and Lower California. Numerous Geography courses are offered by various professors, but most of these courses are secondary in content and quality. However, there are good courses in Economic Geography given in the Escuela Superior de Ciencias Económicas; other good courses in Ecology and in Bio-geography in the Escuela Superior de Ciencias Biológicas; etc.

COLEGIO MILITAR. This initial training school for army officers has had a varied career since it was founded 1821/37. It has been located in the state of Veracruz, and at such sites in the Valley of Mexico as Chapultepec, San Jacinto, and Popotla (its present site). From its founding to the present it has vied with the Engineering School in turning out the leading Mexican topographic and geographic engineers. Naturally, map making and the use of maps have been the principal geographic courses. Specific courses, other than elements of survey and map making, include map reading, geodesy, and military geography (added about 1901). Among outstanding earlier professors have been Francisco Jiménez, Manuel Orozco y Berra (who taught geography in 1861/62), Miguel E. Schulz, Enrique E. Schulz, Pedro C. Sánchez, and José Luis Osorio Mondragon. Unfortunately, we were not able to obtain a list of the current professors.

ESCUELA SUPERIOR DE GUERRA. This War College for staff officers and other promising officers was founded in 1932 and is situated in San Jeronimo about five kilometers southwest from Villa Obregon in the Federal District. It is open to well qualified officers who have already served seven years in the army. The course covers three years. Topography is taken in the first year; Photogrametry and Military Geography are covered in the second year; and Geo-politics is taken in the third year. Our latest information is that Lt. Col. Carlos R. Berzunza is professor of military geography.

ESCUELA NACIONAL DE AGRICULTURA. Formerly at San Jacinto; now at Chapingo, México, México. This school, supported by the SAG, provides a seven-year curriculum the first three of which are very much like a university preparatory school. In the third year topography and agricultural meteorology are studied. The last four years are devoted to specialties leading to the degree of ingeniero agrónomo in such as irrigation, forestry, economics, etc. Among courses given are soils, geology, ecology, economic geography, and statistics. The leading professor at present is Ing. Dr. Emilio Alanís Patiño.

MEXICO CITY COLLEGE. Address: San Luis Potosí 154, México, D. F. Opened 1940, but not effectively until 1946. American College with courses in English and Spanish. Four courses are offered in geography by Dr. Jorge A. Vivó.

UNIVERSIDAD OBRERA DE MÉXICO. Opened 1933/34 as Universidad Gabino Barreda, but changed to present name 1934/36. Semi-official, leftish, backed by the C.T.A.L. No degrees or diplomas are given. One course on Geography of America is offered.

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UNIVERSIDAD FEMENINA DE MEXICO. Private university opened about 1943 near Chapultepec Park. The preparatory school offers same work as the ENP, and two or three courses in geography are offered in the professional schools.

In Mexico, outside of the Federal District and the Valley of Mexico, there are a number of state supported provincial universities and institutes and several private institutions of higher learning. Not one of these has a department of geography offering advanced work in geography, although some geography is taught in all of the institutions. Usually the geographic courses are confined to the attached university preparatory school (often under such titles as colegio, liceo, or instituto). The more important, and the ones for which we have information, are listed hereafter in alphabetic order of the states in which they are located.

Instituto de Ciencias de Aguascalientes. Aguascalientes, Aguascalientes.
Instituto Campechano. Campeche, Campeche.
Instituto de Ciencias y Artes de Chiapas. Tuxtla Gutiérrez, Chiapas. Physical, Mexican, and General Geography given in Preparatory, Normal and Commercial Schools. A branch (Preparatory and Law) in San Cristóbal de Las Casas.
Universidad de Guanajuato. Guanajuato, Guanajuato. Origins go back to 1732 and to 1828 (Colegio de Guanajuato). Reorganized as University in 1945 and includes state meteorological service and all preparatory schools in the state such as at Leon. Courses patterned after UNM.
Instituto Científico y Literario del Estado de Hidalgo. Pachuca, Hidalgo.
Universidad de Guadalajara. Guadalajara, Jalisco. State-supported; opened Nov. 3, 1792; reorganized 1826 and 1925. Has an Instituto de Geografía directed by Ing. José R. Benítez. Geographic courses offered in various schools include Cosmography, Topography, Geodesy, Commercial Geography, Economic Geography, Commercial Geography of Mexico and the Americas.
Universidad Autónoma de Guadalajara. Guadalajara, Jalisco. Founded 1935.
Instituto Científico y Literario Autónomo del Estado de México. Toluca, Mexico. Ing. Enrique E. Schulz once taught geography here.
Universidad Michoacana de San Nicolás de Hidalgo. Morelia, Michoacán. The preparatory school -- Colegio Primitivo y Nacional de San Nicolás de Hidalgo -- is the oldest existing institution of higher learning in Mexico since it was founded in 1540. Various schools in Morélia were unified into a university in 1917. There have been many reorganizations, especially in 1933 and 1939. Geography has been taught here at least since 1869, and at present courses are offered on General Geography, Geography of Mexico, Human Geography and Advanced Mexican Geography.
Instituto de Educación Superior del Estado de Morelos. Cuernavaca, Morelos.
Universidad de Nuevo León. Monterrey, Nuevo León. Founded as state institution about 1932/33. Patterned after UNM, but school year runs September to June. An Instituto de Investigaciones Científicas founded 1943.
Instituto Tecnológico y de Estudios Superiores de Monterrey. Monterrey, Nuevo León. Private institution founded 1943 which bids to become one of the best institutions of higher education in Mexico. School year September to June. Several geographic courses offered in four of the schools or divisions including good courses on physical and economic geography. The professors include Sr. José A. Lozano and Ing. Isidro Vizcaya (who has carried out special studies in the climates, soils and vegetation of Northeastern Mexico [Tam., N.L., Coach., etc.]).

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Instituto Autónomo de Ciencias y Artes del Estado de Oaxaca. Oaxaca, Oaxaca. Opened about 1825/27. Several courses in general and commercial geography.

Universidad de Puebla. Puebla, Puebla. State university organized in 1937 on basis of Colegio del Estado (1825-) which succeeded colonial foundations. Comparatively good university library; meteorological observatory. A number of geographic courses.

Universidad Autónoma de San Luis Potosí. San Luis Potosí, San Luis Potosí. Organized 1923 on basis of Inst. Cient. y Lit. (1859-) and earlier schools. Several geography courses.

Universidad Autónoma de Sinaloa. Culiacán, Sinaloa. Developed from Liceo and Colegio Civil Rosales (founded Mazatlan 1873-74), Universidad de Occidente (1918-22), Universidad Socialista de Culiacán and del Noroeste 1937-41. School year October to July. Offers several geography courses.

Universidad de Sonora. Hermosillo, Sonora. Developed 1939/42. School year September to June. Courses on Physical, Human, Economic, Social and Mexican Geography and also Cosmography by Prof. Aureliano Corral Delgado.

Instituto Juárez del Estado de Tabasco. Villa Hermosa, Tabasco.

Universidad de Veracruz (also Universidad Veracruzana). Jalapa, Veracruz. Autonomous state university organized in 1944 and includes all higher schools in the state such as those in Córdoba, Veracruz and Nogales.

Universidad de Yucatán. Merída, Yucatán. Reorganized 1938 on basis of Universidad Nacional del Sureste 1922-38. State autonomous university with school year September to June. Several geographic courses.

Perhaps there should be mentioned also the institutes, schools and colleges in

Mexicali, Baja California - T.N.
Saltillo, Coahuila
Colima, Colima
Ciudad Juárez, Chihuahua
Chihuahua, Chihuahua
Durango, Durango
Chilpancingo, Guerrero
Tepic, Nayarit
Juchitán, Oaxaca
Querétaro, Querétaro
Ciudad Victoria, Tamaulipas
Tampico, Tamaulipas
Zacatecas, Zacatecas

To this list could be added other schools with at least university preparatory type of geographic instruction.

In summary, it seems that the U. N. M. and the ENS possess the only real departments for the education of professional geographers. However, these geographers are trained more to be Secondary and Normal school teachers than to be research geographers. There is an acute shortage of trained geographers in Mexico.

RESOURCES FOR GEOGRAPHIC RESEARCH AND INSTRUCTION

Not much was done toward studying the Mexican resources for research and instruction in Geography. However, a few items will be outlined here. The resources consist of the natural and cultural landscape, financial backing, laboratory and field equipment, trained personnel, and organized collections of manuscripts, maps, books, periodicals and the like. At this time we will say of the physical and cultural landscapes of Mexico only that they probably

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provide a greater range or variety in nearly everything from soil and climate to languages and cultures than can be found in any other country in the New World. The other resources we will comment on in somewhat fuller form.

Financial Backing. There are no wealthy and interested foundations in Mexico such as the Carnegie, Rockefeller, etc., in the United States of America. However, a few Northamerican foundations such as the Viking Fund, Rockefeller Foundation, Rosenwald Foundation, etc., have sponsored and financed research in aspects of Mexican geography; and in a few instances Mexican scholars have received grants. The Mexican government, principally the federal government and to a very minor degree some of the state governments, is the chief source of financial backing for nearly all types of research in Mexico. Since Mexico is so in need of improving the utilization of her natural resources, most governmental research money goes into studies and projects that promise returns in the near future. There is practically no money for "pure science". In the field of education most of the money is supplied by the government, and there are practically no strong and well-financed private universities. Salaries of professors and the stipends of the few scholarships are quite low. As mentioned previously, there are no full time professors of geography. One Mexican foundation should be mentioned here -- the Fondo de Cultura Económica -- which has concentrated to date on publications including translations of worthwhile materials in many fields and languages into the Spanish.

Laboratory and Field Equipment. The geographer obtains most of his data of precise scientific nature from the laboratories and observatories of other workers (chemical analyses of soils, microscopic analyses of rocks, meteorologic observations, seismologic records, hydrologic data, etc.). In Mexico most of such data are provided by different branches of the government. A careful inventory and evaluation of the various scientific stations, observatories, laboratories and the like, with notation of length of record, width or area of coverage, technique of observation or recording, accuracy, etc., should be made. This would serve as a valuable guide to anyone working in Mexican geography. At present it is rather difficult, for example, to find out where all the meteorologic stations in Mexico are located together with a statement of length of record and nature of reliability for each. The truly geographic laboratory commonly is no more than a map-making or cartographic laboratory. All of the well-equipped cartographic laboratories in Mexico are in governmental offices.

The geographer commonly does not need more field equipment than a suitable means of transportation, elementary survey instruments (compass, alidade, plane-table, chain or tape, and barometer or altimeter), recording materials (notebooks, pencils, pens, cameras and films), and personal equipment. Unfortunately, most Mexican geographers cannot afford much of the above list -- either in adequate quantity or good quality; and one result is the geographic report which normally is characterized by generalities instead of exact personal observations, and by crude sketch maps and poor photographs. However, much of the poor quality of most Mexican illustrations may be explained by poor developing of the films, poor prints, poor reproduction in cuts, and especially the poor quality of paper often used in publications.

It might be of interest here to mention the leading types and areas of geographic field work in Mexico. In the first place, most of the field re-

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search is not done by professional geographers. Therefore, the results of fieldwork by engineers, soldiers, physicians, geologists, etc., might perhaps better be listed under published resources for research. For quite a few years now, the young graduates of medical schools in Mexico (such as those of the National University and of the Polytechnic Institute) have served a type of interneship in rural medicine, hygiene, and sanitation. Sometimes individuals representing various disciplines will constitute a "social service brigade" to some community or area, and a joint monograph or report is prepared on that community or area. Again, an individual physician will go to some community, commonly a municipio composed of several communities, and after studying the area and serving the people for six months will write a report on the local medical situation (sanitation, climate, water supply, endemic and epidemic diseases, etc.) which constitutes a contribution to the medical geography of Mexico. Although a few of these reports or informes are published, most of them are filed in mimeographed or typewritten form. There are now hundreds of these reports which represent such an areal coverage of Mexico that they could now be summarized with profit. The same social responsibility is found among the engineers, and in most cases the professional thesis (where such is required) represents the study of some local problem with a recommendation for its solution. A student working for a title in hydraulic (irrigation) engineering, for example, may study some little valley of temporal farming, and report upon its soils, vegetation, climate, hydrography, geology, general economy, and crops, and end with a recommendation as to how and where irrigation should be introduced. Even the army officers studying in the Escuela Superior de Guerra provide considerable geographic material in their theses, especially those treating on the terrain possibilities for strategic defense in various coastal and peripheral areas.

Since most of the field research is economically purposeful, the areas of study are usually those that promise the greatest returns. Consequently, most of the study and mapping of soils (for example) has been in areas of present dense agricultural occupation or (and this is more common) in areas where some governmentally sponsored work (irrigation, drainage, communications) will make available a considerable new addition to the arable acreage of the country. However, some study is carried out in areas that have little present economic promise. Usually these areas are in border or remote location (from the national nerve center in Mexico City), and such studies have a combined nationalistic, military, and possible economic purpose or value. Falling in this last general category is the region of Lower California and associated islands of the Pacific, into which the Institute of Geology, the Marine department, the SMGE and other groups have sent a number of expeditions during the past fifty years. In similar category is the southeastern borderlands of Chiapas and Quintana Roo where various separate and joint parties from SCOP, SEP, SDN and other governmental departments have carried out investigations ranging from mapping of terrain to locating areas of certain endemic diseases.

Trained Personnel. There is a great need for trained men in all branches of the earth sciences and the biological sciences, as well as in the various applied sciences or engineering fields. So far the schools and universities in Mexico have not been able to train enough geographers to fill even the positions available with the government. There exist the makings of a vicious circle since there are few if any highly trained research geographers, and the people who are now entrusted with training the future generation of geographers have neither the time nor money to do much original research and so perfect

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themselves as teachers and stimulators of future research geographers. At the moment there seems to be some conflict between the engineers (and others with a background in mathematics and physics) who want geographers trained as topographers, cartographers, and geodesists, and the cultural geographers (and others trained in the social sciences and humanities) who are content to train geographers with a synthetic mixture of history, anthropology, economics and a certain amount of physical and biological geography derived from textbooks.

Libraries and Archives. For the geographer who is interested in all phases of his subject from biogeography to historical geography there are valuable printed and manuscript materials in hundreds of libraries and files scattered over Mexico. So far, there has been no attempt to evaluate these various holdings from a geographic point of view. Therefore we merely list the larger and better known collections.

ARCHIVO GENERAL DE LA NACIÓN. SG. The largest and finest collection of archival material in Mexico -- principally from the colonial period. The main source for work in historical geography. (PALACIO NACIONAL).

UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. A large number of libraries (30±) are administered by the National University. The National Library and many of the others are open to the public, but most of the research institute libraries are only for the members of the institutes. Among the libraries with geographic materials are:

- BIBLIOTECA NACIONAL and the separately housed HEMEROTECA which constitute the largest collections of books and periodicals in Mexico.
- BIB. INSTITUTO DE GEOLOGÍA, GEOFÍSICA Y GEODESIA. The best in Mexico for geology and physical geography. (Calle del Ciprés 176).
- BIB. INSTITUTO DE BIOLOGÍA. The best library for work in biogeography. (Casa del Lago, Chapultepec).
- BIB. INSTITUTO DE GEOGRAFÍA. A minor library. (Calle Palma Norte, 9).

BIB. ACADEMIA NACIONAL DE CIENCIAS, "ANTONIO ALZATE" and the library of the SOCIEDAD MEXICANA DE GEOGRAFÍA Y ESTADÍSTICA housed in the same building at Justo Sierra 19. These collections total more than 175,000 volumes, and they constitute the best scientific (including geographic) library in Mexico.

BIB. Y ARCHIVOS DE LA SECRETARÍA DE HACIENDA. An excellent library for historical and economic geography.

BIB. DEL MUSEO NACIONAL DE ANTROPOLOGÍA E HISTORIA. This library and various manuscript collections (all housed in Moneda 13) provide excellent materials in historical and anthropo-geography.

BIB. DEL CONGRESO. A modern reference library at Tacuba 29.

BIB. INSTITUTO PANAMERICANO DE GEOGRAFÍA E HISTORIA. Recent and broken holdings.

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BIB. BENJAMIN FRANKLIN. Stresses English-language materials; but is most helpful through its attempts to develop "union catalogs" of holdings in various fields in the Federal District.

BIB. DE LA SECRETARÍA DE EDUCACIÓN PÚBLICA. Among the libraries of state secretariats that of the Sec. Hac. and this of the SEP are best for the geographer. However, there are many worth while items not otherwise available in other departamental libraries such as those of Relaciones Exteriores, Defensa Nacional, Economía (especially Dir. Estadística), Agricultura y Ganadería (especially DGM), and Recursos Hidráulicos.

The best provincial libraries and archives are to be found in Puebla, Morelia, and Guadalajara. However, for local geographic studies there will be found some valuable and otherwise unattainable material in scores of other towns. Note: A survey of public and private libraries and archives as to special collections (geography, geology, biology, etc.) is urgently needed.

ARCHIVO DE INSTRUMENTOS PUBLICOS, Guadalajara, Jalisco. The director is Ing. Lic. Arnuefo Villaseñor. The section "Aguas Tierras" is important for historical geographic research.

BIBLIOTECA PÚBLICA, Guadalajara, Jalisco. The director is José Cornejo Franco. Important old rare geographical books and the valuable archives of the Audencia de la Nueva Galicia.

The notable map collections are not numerous. The best for historical purposes is the collection of the SOCIEDAD MEXICANA DE GEOGRAFÍA Y ESTADÍSTICA, while the best working collection is that of the DIRECCIÓN DE GEOGRAFÍA Y METEOROLOGÍA of the SAG -- which also has a good historical group in the Orozco y Berra Collection. Other valuable collections belong to the Academía Nacional de Ciencias "Antonio Alzate", the Museo Nacional de Antropología e Historia, Escuela Nacional de Ingenieros, Secretaría de la Hacienda, Secretaría de la Defensa Nacional, Archivo General de la Nación, Departamento Agrario, Instituto Panamericano de Geografía e Historia, Secretaría de Recursos Hidráulicos, and the Secretaría de Relaciones Exteriores. Even less is known concerning the map resources than the book resources for Mexican Geography.

Textbooks. In this preliminary report space will be taken only to mention some recent trends in geographic texts. For some years now there have been periodic contests (conducted by the S. E. P. and various state governments) for suitable up-to-date textbooks in the fields and at the levels prescribed for elementary and secondary education. Among the results have been numerous geographic texts which range from very good to poor. There are some geographies of Mexico as a whole and of several of the political entities (e. g., D. F. and Nayarit) which are well organized and well written, and which suffer only from the poor quality of paper used in printing. Considering the nature of geographic education in Mexico it is natural that most of the texts have been written for elementary, secondary, and normal schools. Consequently, most of the texts used in university courses in geography either are in English, French or German, or are translations from these languages into the Spanish. Among the foreign authors now available in Spanish an listed in the minimal bibliography of the Department of Geography of the National University are:

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German to Spanish	French to Spanish	English to Spanish
W. Koeppen	Vidal de la Blache and Gallois	J. S. Gregory
N. Krebs	J. Brunhes and C. Vallaux	J. F. Horrabin
K. Kretschmer	C. Vallaux	E. Huntington
O. Schmieder		Jones and Darkenwald
L. Waibel		C. A. Mills
A. Wegener		M. I. Newbigin
		S. Pettersson
		N. J. Spykman
		D. Whittlesey

Also there is considerable use of English-language texts -- in fact, there is very little use of foreign language texts other than in English. Among English language authors represented are:

W. W. Atwood
H. H. Bennett
W. Bowie
BROOKS, Connor et al.
C. H. Deetz
Dickinson and Howarth
Finch and Trewartha
R. Hartshorne
P. James
C. F. Jones
E. Raisz
C. O. Sauer
E. C. Semple
O. D. von Engeln
E. W. Zimmermann

Among the Spanish language authors are:

O. Bustamante
P. Carrasco
J. Galindo y Villa
G. Loyo
S. Massip
M. Medina
I. G. Orozco
B. Osorio Tafall
R. Robles Ramos
P. C. Sánchez
R. Toscano
J. A. Vivó

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THE WEST INDIES[1]

Most of the geographic work in the West Indies is conducted under the supervision of the governments as part of their regular service to the community. Meteorology is outstanding among these fields of research. In an area affected by hurricanes, the meteorological services are particularly important in the summer and late fall. However, a large part of the work is routine weather observation, and collection and printing of climatological data. In addition, a great deal of work is being done in topographic, aerial and hydrographic mapping. Large sections of the West Indies have not yet been mapped thoroughly, but work is progressing in several territories. Soils and soil conservation comprise another of the physical fields in which research is being carried out by governmental agencies. Basic research is being done on the relation of forests to soils, and climatic conditions in several of the islands.

Geographic work in the West Indies is limited by the lack of institutions of higher learning and by the lack in them of trained personnel who can devote a substantial part of their time to field work and other geographic research. However, there are two notable exceptions in the University of Puerto Rico and the University of Havana, the two outstanding universities in the West Indies. The Social Science Research Center of the University of Puerto Rico has a broad program of geographic research. The physiographic, ecological, and land use studies of the personnel of the University of Havana are outstanding. In the French West Indies local and French geographers report some interesting geographic studies. The publications of the Caribbean Commission present much geographical information on the area.

THE CARIBBEAN COMMISSION

The Anglo-American Caribbean Commission was created by the Governments of the United States and the United Kingdom on March 9, 1942, for the purpose of encouraging and strengthening social and economic cooperation between the United States of America and its possessions and bases in the area known geographically and politically as the Caribbean, and the United Kingdom and the British colonies in the same area, and to avoid duplication of research in these fields. Subsequently the Governments of France and of the Netherlands joined the Commission and the name was appropriately changed to "The Caribbean Commission".

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[1]This report was prepared under the direction of Dr. Rafael Picó, Chairman, Puerto Rico Planning Board, Santurce, Puerto Rico, Chairman of the Subcommittee on the West Indies. We express our appreciation for the efficient assistance of Professor Antonio Chaves, E No. 354 Altos, Vedado, Habana, Cuba, Professor John P. Augelli, University of Puerto Rico, Rio Piedras, Puerto Rico, and Miss Zayda Buitrago, Social Science Research Center, University of Puerto Rico, Rio Piedras, Puerto Rico.

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Central Secretariat, Rear Admiral J. E. M. Ranneft (ret.), Kent House, Port of Spain, Trinidad. Complete information on the weather reporting system in the Caribbean Area, with particular information on hurricane warning set-up. Annual reports of the Meetings of the Commission.

Caribbean Research Council Caribbean Commission, Kent House, Port of Spain, Trinidad. The Caribbean Research Council was established by the Commission in August, 1943, to survey needs, to determine what research has been done, to facilitate research on a cooperative basis, and to arrange for the prompt dissemination of the results of research, all without limitation to the field of inquiry. In pursuance of these objectives several research committees carried on investigations and published the results of research in a series of bulletins. The technical publications of the research committees include four series:

1. Fishery Series.
   The Crawfish Industry of the Bahamas. (Mimeographed Pamphlet)

   Fresh and Brackish Water Fish Culture. (Mimeographed Pamphlet)

   An Experimental Fishery Survey in Trinidad, Tobago and British Guiana, Washington, 1945, pp. 130
   Guide to Commercial Shark Fishing in the Caribbean Area, Washington, 1945, pp. 149.
   The Spring Lobster Industry of the Caribbean and Florida, Port of Spain, Trinidad, 1948, pp. 49.

2. Crop Inquiry Series.
   Livestock in the Caribbean (Crop Inquiry Series No.1), Washington, 1946, pp. 158.
   Grasses and Grassland Management in the Caribbean (Crop Inquiry Series No. 2)
   Grain Crops in the Caribbean (Crop Inquiry Series No. 3), Washington, 1947, pp. 125.
   Root Crops and Legumes in the Caribbean (Crop Inquiry Series No. 4), Washington, 1947, pp. 128.
   Vegetables in the Caribbean (Crop Inquiry Series No.5), Washington, 1947, pp. 87.
   The Sugar Industry of the Caribbean (Crop Inquiry Series No. 6), Washington, 1947, pp. 343.

3. Trade Bulletins.
   The Sugar Trade of the Caribbean (External Trade Bulletin No. 1), Trinidad, Port of Spain
   The Cement Trade of the Caribbean (External Trade Bulletin No.2), Port of Spain, Trinidad
   The Fish Trade of the Caribbean (External Trade Bulletin No. 3), Washington, 1948, pp. 259.
   The Tobacco Trade of the Caribbean (External Trade Bulletin No. 4), Port of Spain, Trinidad
   The Dairy Products Trade of the Caribbean (External Trade Bulletin No. 5), Washington, 1949, pp. 169.
   Meat Trade of the Caribbean (External Trade Bulletin No. 6), New York

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4. Miscellaneous.
   Caribbean Medical Center
   Caribbean Tourist Trade, Washington, 1945, pp. 171.
   Forest Research within the Caribbean Area, Washington, 1947, pp.128.
   Caribbean Land Tenure Symposium, Washington, 1946, pp. 377.
   Industrial Development of Puerto Rico and the Virgin Islands of the United States -- Report of the United States Section, Caribbean Commission, Port-of-Spain, Trinidad, 1948, pp. 268.
   Population Movements in the Caribbean, Port-of-Spain, Trinidad, 1950, pp. 187.

The above list is incomplete; research and publication continue.

BRITISH WEST INDIES

General, Government Agencies:

Directorate of Colonial Surveys, Block "B", Bushy Park, Teddington, Middlesex, England.
- Air Survey of: Jamaica, Antigua, Barbados-Army Map Service, Corps of Engineers, U. S. Army, Washington 16, D. C.
- Printed material: Maps produced by agency. Jamaica (Class No. DCS1) Scale 1:50,000 -- 12 sheets; Barbados-Bridgetown (DCS3) Town plan 1:10,000 -- 1 sheet; Antigua (DCS6) 1:25,000 -- 2 sheets; Antigua (DCS11) St. Johns town plan 1:10,000 -- 1 sheet. (Maps are available in the colonies concerned and at this headquarters.) Annual Report 1946-47; Annual Reports.

Directorate of Colonial Geological Surveys, Imperial Institute, South Kensington, London, S. W. 7.
- British Guiana: Geological Survey.
- Trinidad: Government Geologist, Mines Department, San Fernando, Trinidad.
- Jamaica: Scheme for two Government Geologists for 1949 -- 56 under consideration.

The Imperial College of Tropical Agriculture, Port-of-Spain, Trinidad.
- Research on the agronomics of tropical crops with emphasis on cacao and sugar cane.

Barbados:

Department of Science and Agriculture, Bridgetown, Barbados.
- Soils. Survey, erosion control, fertilizer requirements of crops, etc. Land Tenure and use. Studies in peasant agriculture.
- Publications: Agricultural Journals, Annual Reports and Bulletins, published by Dept. of Science and Agriculture.

Barbados Museum and Historical Society, Bridgetown, Barbados.
- Collection of data related to physical and historical geography of the island.

Dominica:

Public Works Department, Roseau, Dominica.
- Officer holding the appointment of Surveyor General (i) Survey of an Estate in connection with a forthcoming Urban Planning Scheme (ii) Commencement of a topographical map of the Island (iii) small cadastral surveys in connection with land tenure.
- Publications: (i) and (ii) available on completion (iii) not available.

Bahamas:

Meteorological Office (Government Agency) c/o Telecommunications Dept., Nassau, Bahamas.

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Meteorology and climate.

St. Vincent:
Department of Agriculture (Government Agency), St. Vincent, B. W. I.
Soil surveys; Forestry surveys.

British Guiana:
Royal Agricultural and Commercial Society, Georgetown, British Guiana. Hon. Vincent Roih, Secretary.
Occasionally sponsors expeditions to the interior of British Guiana.
Publications: "Timehri" -- a magazine which appears periodically.
Geological Survey of British Guiana, Georgetown, British Guiana. Mr. Smith Bracewell, Director.
Topographical and geological surveys in British Guiana.
Publications: Reports of the Geological Survey of British Guiana.

CUBA[2]

Government Agencies:
Instituto Cartográfico de Cuba, Direccion de Montes y Minas, Ministerio de Agricultura, Habana.
Engaged in detailed and accurate mapification of Cuban territory, with the collaboration of the U. S. Geodetic Survey. Long term project. First part (primary triangulation) to be completed within this year by the Sección de Geódesia of the Instituto, under the direction of Ing. Jesús F. Albear.
Comisión Geologica Cubana, Dirección de Montes y Minas, Ministerio de Agricultura, Habana.
Engaged in mapping the geology of Cuba, under the direction of Eng. Jorge Brodermann. General survey completed. Detailed survey handicapped by lack of accurate maps.
Observatorio Nacional, Casablanca, Habana. Director, Eng. Jose Carlos Millàss.
Complete weather observations for Habana. Receives weather records (temperature and precipitation) from naval posts, sugar centrals, schools and cooperative observers throughout the whole of Cuba. Maintains an auxiliary station in the Caiman Islands to observe hurricanes menacing Western Cuba.
Observatorio del Colegio de Belén, Colegio de Belén, Buenavista, Mariano, Cuba.
Observatorio del Colegio Montserrat, Colegio Montserrat, Cienfuegos, Las Villas, Cuba.
Observatorio del Colegio de Dolores, Colegio de Dolores, Santiago de Cuba, Oriente, Cuba.
Weather Station, Aeropuerto de Rancho Boyeros, Rancho Boyeros, Habana, Cuba.

Societies:
Sociedad Geográfica de Cuba, Acosta entre Compostela y Picota, La Habana, Cuba.
Promotes geographic studies in Cuba through lectures and honors.
Publication: "Revista de la Sociedad Geográfica de Cuba" (quarterly).

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[2]This section was contributed by Professor Antonio Chaves.

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Sociedad de Geografía e Historia de Oriente, Palacio del Gobierno Provincial, Santiago de Cuba, Oriente, Cuba.
Its main branch, the "Grupo Humboldt" makes field trips to points of geographic interest in Oriente Province. Results published in mimeographed form.

Individuals:

Dr. Salvador Massip
Dra. Sara Isalgué de Massip, Facultad de Filosofía y Letras, Universidad de la Habana, Habana, Cuba.
Teaching. Senior geographers in Cuba. Work together on textbook on geography of Cuba for the University. Doctora Isalgué works also on her book "Problemas Geomorfológicos de Cuba".
Dr. Carlos Iñiguez, Facultad de Filosofía y Letras, Universidad de la Habana, Habana, Cuba.
Teaching.
Dr. Gerardo Canet, Instituto de la Víbora, Habana, Cuba.
Teaching. Just completed "Atlas de Cuba" assisted by Erwin Raisz. Illustrates books by colleagues in Cuba.
Dr. Leví Marrero, Instituto de la Víbora, Habana, Cuba.
Teaching. Working in textbook on the "Geografía de Cuba" for the Cuban Institutos (High-Schools).
Dr. Pedro Cañas Abril, Facultad de Filosofía y Letras, Universidad de Oriente, Santiago de Cuba, Oriente, Cuba.
Teaching. Organizes field trips for the "Grupo Humboldt" of the Sociedad de Geografía e Historia de Oriente.
Sr. Antonio Núñez Jiménez, San Rafael 359, 2do. Piso Habana, Cuba.
Presides the "Sociedad Espeleológica de Cuba", a group actively engaged in the exploration of caves in Cuba with geography and archaeology as sidelines.

Book Notes:

Núñez, Jiménez, Antonio. "Estudio de la región de Mayarí", (Rev. soc. geog. Cuba, ano 21, no. 1-4, enero-dic., 1948, pp. 37-70).
An account of geographical and archaeological explorations in the Mayarí region of Oriente Province in eastern Cuba, preceded by a survey of the physical, economic and social geography of the area.
Núñez, Jiménez, Antonio. "Viaje al Río Toa", (Carteles, ano 31, nos. 16, 17, 18, abril, 1948).
An account of a field trip to the Río Toa area of Oriente Province, in eastern Cuba.
Millás, José Carlos. "Una conferencia en Matanzas sobre huracanes"(Rev. soc. geog. Cuba, ano 21, no. 1-4, enero-dic., 1948, pp. 109-120).
A survey for the layman of hurricanes as a menace to Cuba and of the modern methods for their detection and study.
Massip, Salvador. "Apreciación geográfica de la Isla de Pinos" (Rev. soc. geog. Cuba, ano 22, no. 1-2, enero-jun., 1949, pp. 5-10).
A brief geographic survey of the Isle of Pines, in western Cuba. Geologic origin, relief, drainage, coast line, climate, vegetation, settlement. Map.
Brodermann, Jorge. "Bosquejo geológico e hidráulico de la Isla de Pinos" (Rev. soc. geog. Cuba, ano 22, no. 1-2, enero-jun., 1949, pp. 21-32).
A summary of facts and interpretations on the geology of the Isle of Pines, in western Cuba, from Fernández de Castro and Salterain (1869-83), through Hayes, Allende, Lewis, Rutten, Paje, McAllister

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and Palmer to the present studies of the Comisión Geológica Cubana, followed by an exposition of the hidrology of the island.

Hermano Leon. "Vegetación de la Isla de Pinos (Rev. Soc. geog. Cuba, año 22, no. 1-2, enero-jun., 1949, pp. 33-42).

A survey of the outstanding characteristic botanical species of the island, with some reference to plant associations found in different portions of its territory.

Howell Rivero, Luis. "Los Mares de la Isla de Pinos" (Rev. soc. geog. Cuba, año 22, no. 1-2, enero-jun., 1949, pp. 43-52).

A study of the coast lines of the island, the surrounding platform and cays, the present fisheries and the future fishing possibilities.

Isalgué de Massip, Sara. "Porvenir de la Isla de Pinos" (Rev. soc. geog. Cuba, año 22, no. 1-2, enero-jun., 1949, pp. 53-64).

A report on the settlement and the economic assets and potentialities of the Isle of Pines: grazing, lumbering, mining of marble, gold, tungsten and kaolin, turism.

Marrero, Leví. Geografía de Cuba. Habana. 1950. 736 pp., illus., maps.

Dr. Leví Marrero is outstanding amongst the young Cuban geographers formed at the University of Habana under the guidance of Dr. Salvador Massip, dean of Cuban geographers. In 1944, Dr. Marrero first published his "Elementos de Geografía de Cuba" following closely the official program for the course in the Institutos de Segunda Enseñanza (state high schools). A new revised edition in 1946 contained some additions and changes. The present Geografía de Cuba is a more ambitious work and departs from the official program in the distribution and grouping of materials in order to present a fuller picture of the geography of Cuba. The role of landforms, climate, soils and vegetation in conditioning man's occupance is exposed with an acute sense for geographic values. The book is richly illustrated with maps and diagrams by Gerardo Canet and with hundreds of photographs. The generous use of air photographs and the excellent cartography are most praiseworthy.

DOMINICAN REPUBLIC

Government Agency:

Consejo Nacional de Geografía y Cartografía, Secretaría de Estado de lo Interior y Policía.

Same work as done before by the "Comisión de Limites Geográficos Nacionales".

Society:

Instituto Geográfico y Geológico de la Universidad de Santo Domingo, Ciudad Trujillo.

Research on geographic and geologic problems of the Dominican Republic.

Individuals: Ing. Prof. Jose Joaquin Hungria,
Subdirector, Instituto Geográfico y Geológico. Director, Sección de Estudios Geográficos del Instituto, Ciudad Trujillo.

Directs geographical research in the Dominican Republic.

Ing. Oscar Cucurullo, Director del Instituto Geográfico y Geológico de la Universidad de Santo Domingo, Ciudad Trujillo.

Works on mathematical geography.

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Vicente Tolentino Rojas, Presidente del Consejo Nacional de Estadísticas, Ciudad Trujillo.
Statistics on Dominican Republic.

DUTCH WEST INDIES

General; Society:

Koninklijk Nederlands Aardrijkskundig Genootschap (Royal Geographic Society of the Netherlands), Secretary, Heevengracht 619, Amsterdam, Holland.
Publications: Tijddschrift van bet Koninklijk Aardrijkskundig genootschap. (1948 - Deel LXV) Bull. of the Royal Geographic Society of the Netherlands (1948 - Vol. LXV).

Curacao:

Hydrographic Section of the Navy Department, The Hague, Holland.
Making of hydrographic maps (for nautical use) of the islands of the Netherland Antilles Curacao scale 1:75,000, Aruba and Bonaire 1:50,000.
Maps printed and available at the Navy Department at The Hague, Holland.

Weather Service, Harbouroffice, Willemstand, Curacao.
Publications: a yearly publication of the temperature, humidity, wind velocity, and wind direction in Curacao and precipitation on the islands of the Netherlands Antilles is issued by the Netherlands Government. Copies are available.

Public Works Curacao Netherlands Antilles, 60 Pareraweg, Curacao.
Regional and urban studies and planning. A plan of extension is made in 1945 for certain parts of Aruba and Curacao, with a report of the Director of Public Works.

Dienst van het Kadaster, De Ruyterkade 1, Willemstad, Curacao.
Cadastral maps indicating all lots of land, which are property of individual landowners or the government and all lots which are given in long-lease by the government to individuals and corporations. Scales: 1:500, 1:1,000 & 1:4,000. Maps are drawn. Copies available.
In preparation: New Topographical map on the scale 1:10,000 of all the islands by means of aerial photography. Survey will be made by the Royal Dutch Air Lines (K. L. M.) Maps will be made by the "Meetdienst van de Rijkswaterstaat" at Delft, Holland. Geodetic ground control is made by the "Dienst van het Kadaster".
From 1906-1912, topographical maps, scale 1:20,000 were made of Curacao, Aruba, Bonaire, Sint Eustatius and Sint Maarten. These maps were printed and published at The Hague, Holland.

Surinam:

Government Bureau for Aerial Surveys, Gravenstraat 8, Paramaribo, Surinam.
Aerial survey of the N. half of the country to start with carried by K. L. M. Royal Dutch Airlines under supervision of this Bureau. Individuals engaged so far: Dr. A. L. Simons and Dr. J. I. S. Zonneveld.

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Public Works and Traffic Department, Paramaribo.
Intended to project a town and enlargements plan for Paramaribo.
Publications: Not yet available.

Dr. D. S. Fernandes, Director of the Department of Agricultural Economics, Paramaribo.
Land tenure and land use.

Mr. H. Schols, Mining engineer and geologist. Head of the Government Service for Mining and Mineral Resources, Paramaribo.
Research work in geology.

Dr. H. Muller, Agricultural Chemist, Paramaribo.
Soils.

Dr. A. L. Simons, Geologist, Director Government Bureau for Aerial Surveys, c/o Government Bureau for Aerial Surveys, Paramaribo.
Reconnaissance survey along the Kabalebo river in W. Surinam; Sept. - Oct. and Nov. 1947.

Prof. Dr. G. Stahel, c/o Land Bouwproefstation, Paramaribo.
Expeditions: location of frontiers. Meteorology.

Dr. D. C. Geyskes, Government Entomologist, Paramaribo.
(Appointed as leader of a planned research expedition for biology and geology.)

FRENCH WEST INDIES

Government Agencies:

"Commandant de la Marine Aux Antilles", Fort-de-France, Martinique.
Cartography.

Department of Agriculture, Martinique, Guadeloupe, Cuyane Francaise.
Soils -- Land tenure and land use.

"Service de Meteorologie", Fort-de-France, Martinique.
Meteorology and climate.

"Institut Geographique National", 136 bis Rue de Grenelle, Paris VII^{e}.
Preparation of a topographic map for Guadeloupe and Martinique -- Scale 1/50,000, relief in contour lines.
Members engaged in Guadeloupe: M. Maillard, Ingenieur Geographe, Chef de Mission de la Mission Geodesique, Bureau du Port, Pointe-a-Pitre, Guadeloupe M.M. Bouchelloux et De Lassus, Ingenieurs Geographes adjoints.

"Station de Meteorologie", Fort Desaix, Martinique.
Collection of meteorological data.

"Station de Physique du Globe", Morne des Cadets, Martinique.
Collection of geophysical data.

Individuals:

M. Dulau, Agrege de Sciences Naturelles, ViceRecteur de la Guadeloupe.
Research for thesis on Botanical Ecology of Guadeloupe. Started: November 1948. Duration: 3 years.

Guy M. Lasserre, Professeur au Lycee, Carnot, Pointe-a-Pitre, Guadeloupe.
Research for Ph.D. thesis on the physical and human geography of Guadeloupe. Started: July 1948. Duration: 2-3 years.

L. Revert, Maitre de conferences de Geographie coloniale a la Faculte des Lettres de Bordeaux, Domaine du Gravieres, Lermont, Gironde.
Geographical study of Martinique, Ph.D. thesis completed in 1948. Published Dec. 1948. (La Martinique, etude geographique).

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Studies on the French Colonies in America (Les Colonies Francaises d'Amerique) -- to be published in January 1949.
Future research: Human geography of Martinique, Guadeloupe, French Guiana; Vulcanology of M. Pelee and M. Soufriere; Demography of the Caribbean Islands.

HAITI

Government Agencies:

Department de L'Agriculture; Ministre: Monsieur L'Agronome Jean David.
Information on Soils; Land Tenure, Meteorology.
Meteorology: Section de Meteorologie -- mostly precipitation and temperature. Some of the stations observe pressure, humidity, cloudiness. Also, at Port-au-Prince: wind speed and direction. (surface and aloft). Seismographic station.

Departement des Travaux Publics; Ministre: Monsieur L'Ingenieur Paul Pereira.
Information on cartography, topography, hydrography.

Society:

Societe Haitienne D'Histoire et de Geographie, Port-au-Prince, Haiti.
President: Dr. Catts J. Pressoir.
Publication: Bulletin Mensuel (monthly).

PUERTO RICO

Government Agencies:

United States Department of Commerce -- Weather Bureau, Box 5187, San Juan, Puerto Rico.
Keeping up climatological records for the Caribbean area.

Institute of Tropical Meteorology, University of Puerto Rico, Río Piedras.
Research on problems of tropical meteorology and climate.

United States Dept. of Agriculture -- Soil Conservation Service, Box 4671, San Juan, Puerto Rico.
Regional surveys of state of soil erosion and methods to control it.

United States Dept. of Agriculture -- Forest Service, Río Piedras, Caguas Road, Agricultural Experiment Station Grounds Box 577, Río Piedras.
Research on tropical forestry.

United States Dept. of Commerce -- Coast and Geodetic Survey, Box 3067, Santurce 29, Puerto Rico.
Preparation of maps of coastal areas and main ports of the Island.

Puerto Rico Dept. of Agriculture -- Oficina Servicio Forestal (Insular Forest Service), Río Piedras.
Inventory of forest resources of Puerto Rico. Preparation of forest atlas of the Island.

Junta de Planificación, de Puerto Rico (Puerto Rico Planning Board), Ponce de León Ave., Stop 22 1/2, Santurce, Puerto Rico.
Problems of urban geography. Editing and printing of "barrio maps" covering the whole Island. Editing and printing urban land use survey maps for 77 cities and towns and 20 villages.

District Control Office, 6th Weather Squadron, Ramey Air Base (Borinquen Field), Puerto Rico.
Complete information on weather in the Caribbean.

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Social Science Research Center, Millard Hansen, Director, University of Puerto Rico, Río Piedras, Puerto Rico.

It is the purpose of the Social Science Research Center to increase and improve the scientific knowledge of the society of Puerto Rico and the Caribbean and thereby to facilitate the discussion, decision, and administration of social policy; to encourage research in social science; and to train personnel in the techniques of social science research. The Center has sought to increase the store of information and judgements about this society by promoting studies which are neither contributions, exclusively, to pure theory in the social sciences nor at the other extreme quick, practical estimates of situations which prudent managers of affairs need in their daily work; the attempt has been to find the middle ground.

Publications of projects of the Social Science Research Center Include the following:

Puerto Rico's Economic Future, by Harvey S. Perloff (1950), 435 pages.

Patterns of Living in Puerto Rican Families, by Lydia J. Roberts and Rosa Luisa Stefani (1949), 411 pages.

Bibliografía Puertorriqueña 1930-1945, by Augusto Bird, Volume I (1946), 180 pages; Volume II (1947), 547 pages.

Nutrition Studies in Puerto Rico 1940-1944, by Ana Teresa Blanco (1946), 96 pages.

Gross Product of Puerto Rico 1940-1944, by Daniel Creamer and Henrietta Creamer (1948), 79 pages.

Gross Product of Puerto Rico 1944-1946, by Daniel Creamer and Henrietta Creamer (1949), 14 pages.

The Net Income of the Puerto Rican Economy 1940-1944, by Daniel Creamer (1947), 96 pages.

Vocational Needs of Puerto Rican Migrants, by Paquita Ruiz (1947), 84 pages.

The Land Authority and Democratic Processes in Puerto Rico, by Walter E. Packard (1948), 101 pages.

Balance of External Payment of Puerto Rico 1942-1946, by Robert L. Sammons and Belén H. Cestero (1948), 64 pages.

Puerto Rican Emigration, by Clarence Senior (1947), 166 pages.

Estudio de la Comunidad, by Caroline F. Ware (1947), 153 pages.

Organización de la Comunidad — Edited by Felicidad R. Catala (1947), 81 pages.

The Puerto Rican Migrant in St. Croix, by Clarence Senior (1947), 42 pages.

Other significant research projects include the anthropological survey of five communities under the direction of Professor Julian Steward, of Columbia University; the population study under the direction of Dr. Frank W. Notestein, Director of the Office of Population Research, Princeton University, with the assistance of Dr. Paul K. Hatt, now of Northwestern University; the physical antropological study under the direction of Harry L. Shapiro, of the American Museum of Natural History and Columbia University; and the study of Puerto Rican Labor under the direction of Simon Rottenberg.

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Rural Land Classification Program of Puerto Rico.

A cooperative project of the Department of Agriculture and Commerce of Puerto Rico, the Puerto Rico Planning Board, the Social Science Research Center of the University of Puerto Rico, and the Department of Geography of Northwestern University. The chief personnel involved in the direction of the program are:

Director, Clarence F. Jones, Chairman, Department of Geography, Northwestern University, Evanston, Illinois.
Asst. Director, John Lounsbury, Department of Geography, Northwestern University.
Commissioner Ramon Colon-Torres, Dept. of Agric. and Commerce, Puerto Rico.
Luis A. Nazario, Chief, Bureau of Agricultural Economics, Dept. of Agric. and Commerce.
Hector Berrios, Bureau of Agricultural Economics.
Dr. Rafael Picó, Chairman, Puerto Rican Planning Board.
Dr. Millard Hansen, Director of the Social Science Research Center, University of Puerto Rico.
Patriciano Rivera, Chief Cartographic Unit of the Program.
Dr. Edward B. Espenshade, Department of Geography, Northwestern University, Consultant on the Program.

The Rural Land Classification Program of Puerto Rico involved the (1) mapping of land use and the physical characteristics of the land on aerial photographs at the scale of 1:10,000, (2) the preparation of a set of land use maps on the scale of 1:10,000, (3) the preparation of dissertations by men who mapped the eighteen mapping units, and (4) the preparation of special follow-up studies. The field mapping is completed. The land use maps will be completed by Dec. 1951. The list of dissertations growing out of the program is as follows:

Donald R. Dyer: Study of Land Classification in Puerto Rico, Northwestern University, 1950.
Arthur H. Doerr: The Relationship of Human Activities in Southwestern Puerto Rico to the Semi-Arid Climate, Northwestern University, 1951.
Robert B. Batchelder: Subhumid Plain of Northwestern Puerto Rico: A Study in Rural Land Utilization, Northwestern University, 1951.
Harold R. Imus: The Mayaguez Area (Puerto Rico) A Study in Farm Economy Analysis, Northwestern University, 1951.
Vernon W. Brockmann: Physical Land Types and Land Utilization in the Coquas-San Lorenzo Regions of Puerto Rico.
Wallace E. Akin: The Dairy Industry of the North Coast of Puerto Rico: A Study in Tropical Dairying, Northwestern University, 1952.
Bernt L. Wills: An Analysis of the Physical Land Types and of the Rural Land Use on those Land Types of the Seven Municipalities of Catano, Payamon, Joa Alta, Joa Baja, Dorado, Vega Alta, and Vega Baja, in Puerto Rico, Northwestern University, 1952.
John F. Lounsbury: Rural Settlement Features and their Association to Agricultural Economies in Aguas Buenas, Comerio, Corozal, and Naranjito, Northwestern University, 1951.

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Robert N. Young: A New Classification of Land Forms in Puerto Rico, University of Wisconsin, 1951.
Joseph A Tosi Jr.: Land Utilization of the Forest and Potential Forest Lands of Western Puerto Rico, Clark University, 1951.
David F. Naley: The Government's Past and Future Plans for the Betterment of the Rural Population, Syracuse University, 1951.
Luther H. Gulick Jr.: A Socio-Geographic Study of the Rural Population of the Western Highlands of Puerto Rico, University of Chicago, 1951.
Donald D. MacPhail: The Cattle Industry of the South Coast of Puerto Rico, University of Michigan, 1951.
Dale E. Courtney: The Geography of the Fruit Industry of Puerto Rico, University of Washington, 1951.
Donald L. Netzer: A Climatic Study of Puerto Rico, University of Illinois, 1951.
George A. Beishlag: The Influence of American Capital in Changing Land Use Patterns in Southern Puerto Rico, University of Maryland, 1952.
Richard L. Lawton: Area Study in Northeastern Puerto Rico: A Study in Historical Development, Syracuse University, 1952.
Dieter H. Brunnschweiler: Land Use in the municipios of Ciales, Morovis and Orocovis in Central Puerto Rico, University of Zurich, 1952.
Kermit M. Laidig: The Problem of the Small Subsistence Farmer in Southeastern Puerto Rico, University of Nebraska, 1951.

Special follow-up studies include, among others, the following:
Estudio Preliminar de las Condiciones Sociales y Agricolas del Valle de Coamo, Puerto Rico, Department of Agriculture and Commerce, 1950, pp. 47.
William W. Burchfeil: The Geography of the Pineapple Industry of Puerto Rico, University of Maryland, 1952.
Donald W. Keillor: The Citron Industry of Puerto Rico, Wayne University, 1952.

Individuals:

Mr. D. C. McDowell, Dir. Institute of Tropical Meteorology at the University of Puerto Rico, Río Piedras.
General investigation on tropical meteorology. Present program: Analysis of rainfall characteristics of Puerto Rico.

Aurelio Matilla Jimeno, Catedrático Asociado de la Universidad de Puerto Rico, Facultad de Ingeniería Departamento de Ingeniería Civil, Colegio de Agricultura y Artes Mecánicas, Mayaguez, Puerto Rico.
Problems on the cartography of Puerto Rico.

Rafael Picó, Chairman Puerto Rico Planning, Urbanizing and Zoning Board (President, Geographical Society of Puerto Rico), Ponce de León, Parada 22-1/2.
The Geographic Regions of Puerto Rico, University of Puerto Press, 1950, pp. 256.
Work on "Geografía de Puerto Rico", a university-level textbook on the physical and human geography of the Island.

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María T. Blanco de Galinanes, Assistant Professor of Geography, University of Puerto Rico, Río Piedras, Puerto Rico.
Research on the physiographic control of rainfall in Puerto Rico.
John P. Augelli, Assistant Professor of Geography, University of Puerto Rico, Río Piedras, Puerto Rico.
Ph.D. dissertation "Agriculture in the Puerto Rican Highlands".

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GUATEMALA, EL SALVADOR, HONDURAS AND BRITISH HONDURAS[1]

In Northern Central America geographers according to the standards of the United States and other Latin American countries are lacking. There are, however, men working in portions of the field.

GUATEMALA

Government Agencies:

Dirección General de Agricultura, Ministerio de Agricultura, Guatemala City.
Colegio Nacional de Agricultura, Finca Barcena, Guatemala.
Observatorio Meteorología Nacional, La Aurora, Guatemala.
Archivo Nacional, Guatemala City.
Although these government agencies are not engaged in geographical work as such, they contribute materials of use to geographers.

Society:

Sociedad de Geografía e Historia de Guatemala, Guatemala City.
Publication: Anales.

Individuals:

Dr. Carlos Urutia, Guatemala City.
Meteorology.
Dr. Aber Muller, Guatemala City.
Studies of Agricultural distributions.

EL SALVADOR

Government Agencies:

Oficina de Cartografía y Geografía, San Salvador.
Departamento del Censo, Dirección General de Estadística.
Observatorio Nacional Meteorológico, San Salvador.
Publication: Anales.

Individuals:

Antonio Cardona Lazo, San Salvador.
Statistical geography and physical geography.
Author of: Diccionerio Geográfico de la República de el Salvador, San Salvador, 1945, pp. 246.

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[1]This report was prepared by Daniel Stanislawski, Chairman of the Subcommittee. He was assisted by Professor Robert C. West, Professor E. C. Higbee, Clark University, Worcester, Mass., Dr. Wilson Popenoe, Director, Escuela Agricola Panamericana, Zamorano, Honduras, and Doris Z. Stone, San Jose, Costa Rica.

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Tomás Fidias Jiménez, San Salvador.
Distribution of native peoples of El Salvador and Toponymy in El Salvador.
Author of: Nueva Geografía de El Salvador, 3A Edición, San Salvador, 1947, pp. 154.

HONDURAS

Government Agencies:
Biblioteca y Archivo Nacional, Tegucigalpa.
Publication: Boletín de la Biblioteca y Archivo Nacionales -- Articles on history and geography; monographs on various political units of the country.
Dirección General de Estadística.

Society:
Sociedad de Geografía e Historia.

Individuals:
Jesús Aguilar Paz, Tegucigalpa.
Mapping of Honduras.

BRITISH HONDURAS

Government Agencies:
Office of Surveys, Belize.
Carries on surveys and prepares maps.
Offices of Forestry, Labor, Customs, and Agriculture.
Publications: Annual reports and official reports.

In addition to the above agencies in Northern Central America, private organizations, such as the United Fruit Company, the Standard Fruit Company, and the Rosario Mine at San Juancito, Honduras, collect weather data, make surveys and prepare maps of their areas of operation.

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PANAMA, COSTA RICA, AND NICARAGUA[1]

COSTA RICA

Individuals:

In Costa Rica there are only two or three persons who have trained specifically for the profession of Geography, but there are a number of people with training in the natural or social sciences and others who have done work which can be labeled geographic in character. Such activity is presently being greatly expanded, especially in certain government agencies.

Carlos H. AGUILAR, Colegio de San Luis, Cartago.
Anthropologist; teaches geography at the Colegio de San Luis, Cartago.

Mario BARRANTES FERRARO, Instituto Geográfico Nacional, San José.
Sub-director of the Instituto Geográfico Nacional de Costa Rica; duties include direction of part of personnel of the Instituto Geográfico, calculation of geodetic positions from 3rd order triangulation, location of the towns of the nation by use of the same triangulation nets, cooperation with official organizations in the preparation of maps (as, for example, surveys of the Metropolitan Area and the City of San José, for the city government); directed cartographic work for the 1950 Census in cooperation with Jorge León; member, Costa Rica - Panamá Boundary Commission; now studying records of the demarcation of the boundary with Nicaragua in order to publish a paper on the boundaries of Costa Rica; publications include the cartography for the 1950 Census and an illustrated article on the progress of cartographic work in Costa Rica.

Virgilio CAAMAÑO, San José.
Inspector of Schools; Human Geography. Has worked especially in Guanacaste and El General. Probably the man who knows best the life and conditions on the Pacific side of Costa Rica; author of El Costarricense y el Mar, self-illustrated, mimeographed, 1942, 44pp., and La Cuenca del Tampisque, Imprenta Ujucta, San José, 1941, 31 pp.

Elliott COEN PARIS, Avenida F.G. No.1543, Apartado 1028, San Jose.
Director of the Servicio Meteorológico de Costa Rica and Professor and Head of the Laboratorio de Física of the University of Costa Rica; presently employed by the Ministerio de Agricultura e Industrias, the Universidad de Costa Rica, and the Colegio Seminario, San José; is engaged in meteorological, climatological and seismological research. Has made an analysis of rainfall of San José between 1866 and 1948, studied the intensity of infra-red and ultra-violet rays in San José and other stations of Costa Rica in order to compare them with climatological conditions, and has investigated and compared the rainfall of the Río Grande and Río Reventazón Basins; has had published by the Instituto Geográfico, a Mapa de climas de Costa Rica -- Clasificación de W. Koeppen, and a Mapa pluviometrico de Costa Rica. Has in press,

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[1] This section was prepared by Professor Paul C. Morrison, Chairman of the Subcommittee. He was assisted by Dr. Jorge León Arguedes, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica, and Dr. Federico Gutiérrez Braun, Instituto Geográfico de Costa Rica, San José, Costa Rica.
The sections on Panama and Nicaragua have not been completed.

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Climatología de Costa Rica and Anales del Servicio Meteorológico del año 1950. Has also published articles in newspapers of San José, for example, "El Servicio Meteorológico", 8/14/48, "Cometas", 8/14,15,16/48, "Lluvia artificial" 4/18/50 and 5/3/50, "Temperaturas de San José", 5/25/50.

Luis DOBLES SEGREDA, San Francisco, Heredia.

Agriculturalist and teacher; Director of Liceo de Costa Rica and the Instituto de Alajuela; author of La America del Norte, 1931, a geography text, Indice bibliográfico de Costa Rica (9 volumes), 1928-36, a very valuable work of which one volume is concerned with geography, and La provincia de Heredia: apuntamientos geográficos, 1934, a compilation of geographical works on Heredia Province, as well as other books and articles.

Ricardo FERNANDEZ PERALTA, Calle Central Norte, Avenidas 1a y 3a, San José.

Civil engineer; formerly Chief Engineer of the Ferrocarril Eléctrico al Pacífico, Chief Engineer of the Municipality of San José, Chief of Costa Rica-Panama Boundary Commission, Secretary of the Ministerio de Fomento, Director, Instituto Geográfico Nacional; author of many articles on geography, geology and vulcanology. Explored Rincón de la Vieja in Guanacaste and area north of Poas Volcano. Did much work on Irazú Volcano with José Fidel Tristán, who is deceased (both men were influenced by Carl Sapper).

Claudio GALLARDO VOLIO, Calle Central y Dos Avenida, casa No. 38-0, San José, Costa Rica.

Secretary of the Instituto Geográfico Nacional de Costa Rica; much interested in all phases of geographic endeavor, but his work is in large part administrative.

Federico GUTIERREZ BRAUN, Instituto Geográfico de Costa Rica, San José, Costa Rica.

Director, Instituto Geográfico Nacional de Costa Rica; Formerly topographic engineer and surveyor in Panama and Nicaragua, engineer, Northern Railroad Company, Superintendent, Ferrocarril Eléctrico al Pacífico, active in planning and construction of hydro-electric plants, in the construction of roads and buildings, and member Costa Rica-Panama Boundary Commission; at present engaged in directing the activities of the Instituto Geográfico, and doing active work in the field.

Wilburg JIMENEZ CASTRO, Calle 6, Avenida 2y4, Edificio Wolf, 2° piso, San José.

Director General de Estadística y Censos, Government of Costa Rica; coordinates and administers investigations by offices under his control (the investigations of particular interest to geographers are demographic and economic in character).
Also directs cartographic work of these offices, including that on a proposed atlas of demographic and economic maps of Costa Rica.

Ricardo JINESTA MUÑOZ, Apartado Postal 1180, San José.

Formerly Assistant Head of the Ministerio de Hacienda, the Ministerio de Fomento, and the Ministerio de Governación, Secretary of the Ferrocarril Eléctrico al Pacífico, Inspector General de Hacienda Municipal, Auditor Municipal of San José, and auditor and treasurer of various businesses; at present doing research in national history; author of El Oro en Costa Rica, Imprenta Falco Hermanos y Cia., 1938; La Isla del Coco, 1937, 1938; Confirmación de los derechos de Costa Rica en el Canal de Nicaragua, Límites con Panamá; and numerous articles on national history and geography.

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Jorge LEÓN ARGUEDAS, Inter American Institute of Agricultural Sciences, Turrialba.

Botanist, Inter-American Institute of Agricultural Sciences, Turralba; use and investigation of geographical materials in relation with botanical exploration of Costa Rica; partial list of geographical publications -- "Nicoya, la vida e historia de un pueblo", Revista Archivos Nacionales, Vol. VI, No. 5-6, pp. 280-306, San José, 1942; "El Clima de Juan Viñas", Revista de Agricultura, 1940, pp. 487-494, San José, 1942; Nueva Geografía de Costa Rica, Soley y Valverde, San José, 1943, 182 pp.; "Agricultura y Colonización en Sarapiqui", Revista Instituto Defensa Café Costa Rica, Tomo XIII, No. 105, July 1943, pp. 445-456, San José, Imprenta Borrasé; "Informe sobre los cultivos de adlay en la región de Tilarán", Departamento de Agricultura de Costa Rica, Boletín Técnico, No. 47, 10 pp., San Pedro de Montes de Oca, 1944; "Land Utilization in Costa Rica", Geographical Review, Vol. 38, No. 3, pp. 444-456, New York, 1948.

Jorge A. LINES, Hacienda Montserrat, San José.

Director Museo Nacional, San José, Profesor de Etnología y Prehistoria, Facultad de Letras y Filosofía, Universidad de Costa Rica, San José; author of some thirty or more papers and articles on archaeology and early history of Costa Rica. His Bibliografía antropológica aborigen de Costa Rica, San José, 1943 is important to geographic research in Costa Rica, since it contains 263 pages of references concerning archaeology, cartography, ethnology, geography, history, and linguistics in Costa Rica.

Carlos E. MELENDEZ CH., Avenida 6, Calle 8-9, Heredia.

Profesor, Escuela Normal de Costa Rica, Heredia; teaches geography to students of the above-mentioned school. Is especially interested in the relation of house types and distribution to agricultural regions, road conditions, etc. Has conducted investigations in the field of national history, especially regarding the evolution of the main towns; is preparing the following studies -- La Carretera Nacional a Puntarenas y el desarrollo de poblaciones a lo largo de esa vía (includes study of typical house types and the influence of the highway on life and customs); La Carreta de Costa Rica (Its origen, evolution, decoration, etc.); El cultivo de trigo en Costa Rica (history of cultivation, regions of cultivation, mills, processes of same, causes of abandonment); El Río Virilla (a geographic study of the region through which this main river of the Meseta Central Occidental flows).

Carlos MONGE ALFARO, Universidad de Costa Rica, San José.

Decano and Catedrático, Universidad de Costa Rica, and Escuela Lincoln de San José de Costa Rica; as Director of the Facultad de Filosofía of the Universidad de Costa Rica, he directs any investigations in the field of geography made by students to obtain the degree of Licenciado. In addition to research in geography, he has carried on investigations in the field of Costa Rican history; published Geografía social y humana de Costa Rica, Segunda Edición, Imprenta y Librería Universal, 1943; Geografía de América, a mimeographed text for secondary schools; Historia de Costa Rica, 3a Edición, Talleres Tipográficos Borrasé, 1951, and a number of essays on Costa Rican sociology.

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Tulia QUIROS AMADOR, Apartado 2272, Instituto Geográfico Nacional.
Calculator, Instituto Geográfico Nacional; among other duties calculates geodetical positions from triangulation of the third order for use in the Mapa definitivo de Costa Rica; author of Geografía de Costa Rica, 1948 (thesis to obtain the degree of Maestra en Geografía, mimeographed), I Capitulo del Anuario Estadístico de 1949 y 1950, published by the Dirección General de Estadística.

Alberto TORRES, Ministerio de Agricultura e Industrias, San José.
Soils; Jefe de la Sección de Suelos, Ministerio de Agricultura e Industrias; directs and works on soil surveys currently being made in Costa Rica; author of papers on soils, especially in Suelo Tico.

José Francisco TREJOS QUIROS, Imprenta Nacional, San José.
Director de la Imprenta Nacional, Government of Costa Rica; formerly associated with a book store and publishing business (Imprenta Trejos Hnos.); geographical research has been on works published by various exolorers of Costa Rica, for the most part foreign scientists, who left their studies scattered in magazines and newspapers; author of Geografía de Costa Rica -- curso superior, two editions, Imprenta Universal. Established and directed publication of Revista de Costa Rica, 1919-1925 and 1929, the seven volumes of which contain the best basic material available in one place in geography, ethnology, natural history, geneology, and history for Costa Rica. Also edited and directed publication of the collection, Biblioteca patria, 1927 - ff, which contains much of interest to the geographer and historian and includes several parts on the history of Costa Rica which were written personally by the editor.

Juan Jose TREJOS QUIROS, Avenida Central No 25 Oeste, San José.
Author: Geografía Ilustrada de Costa Rica, a text for colegios de enseñanza secundaria, with the first edition in 1917 and the 15th in 1948. Also Resumen de psicología, 1929, 1931, a college text book, Cuestiones de psicología racional, 1935, a philosophical essay, and Los Principios de la economía política, an essay on the psycological basis of the science of economics.

Foreign Geographers and Others:

Dr. Cesar DONDOLI, Ministerio de Agricultura e Industrias, San José.
Born and educated in Italy. Profesor de Geología, Universidad de Costa Rica, and Jefe de la Sección de Geología, Ministerio de Agricultura e Industrias; works closely with men of the soils section of the Ministry in making soil surveys; author of a number of papers, especially in Suelo Tico, on geologic and agronomic subjects.

Leslie Rensselaer HOLDRIDGE, Box 74, Turrialba.
Head, Renewable Resources Service, Inter-American Institute of Agricultural Sciences, Turrialba; activities include coordination of interdisciplinary studies of specific areas in Latin America, preparation of plant formation maps of Latin American countries, dendrological studies relative to this ecological mapping. A plant formation map of Costa Rica is presently nearing completion, author -- Arboles de Puerto Rico, 2 Vols. 105 pp. each, U. S. Department of Agriculture, Forest Service, Tropical Forest Experiment Station, 1942 and 1943, "Determinat-

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Charles Price LOOMIS, Department of Sociology and Anthropology, Michigan State College, East Lansing, Michigan.

Directing and conducting ecological studies to delimit service areas of social and economic agencies in the Turrialba area, Costa Rica. Such studies will be extended to other areas of Costa Rica and to areas in Ecuador, Colombia, Guatemala, and El Salvador. Neighborhood and trade center communities are mapped, and the service areas of the agencies are described and charted. Thus the clique and friendship groups are described with sociometric and other techniques; past research includes study of political diffusion of Nazism and Communism in Germany in relation to social and economic factors; the spread has been mapped; author -- Studies in Applied and Theoretical Science, Michigan State College Press, East Lansing, 1951 (Chapter 13 -- Class status in rural Costa Rica -- a peasant community compared with an hacienda community, Chapter 16 -- Extension work for Latin America, and Studies of rural organization in the United States, Latin America, and Germany, Michigan State College Press, East Lansing, 1945 (Chapter 15 -- Extension work at Tingo María, Perú).

Julio Oscar MORALES, Inter-American Institute of Agricultural Sciences, P. O. Box 74, Turrialba.

Born 1918 in Puerto Rico; Head Department of Economics and Rural Life, Inter-American Institute of Agricultural Sciences, conducting research in fields of farm organization and management, farm finance, prices and marketing, and cooperating in research relating to land use, land tenure, analysis of census data and geographical phases of the Community Development Project of the Inter-American Institute of Agricultural Sciences.

Paul Cross MORRISON, Department of Geology and Geography, Michigan State College, East Lansing, Michigan.

Professor of Geography, Michigan State College; has spent three periods of three months' length each as guest scientist at the Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica. Interested in geography of Costa Rica generally and of the Turrialba area specifically; publications in press -- Evolution of the Banana Industry of Costa Rica (written with Clarence F. Jones); Sequent Occupance of the Turrialba Central District, Costa Rica (written with Jorge León). Has published several maps of the Turrialba area. Paper in progress -- Distribution of Population, Turrialba Central District, Costa Rica.

Arthur W. PETERSON, Inter-American Institute of Agricultural Sciences, Apartado 74, Turrialba, Costa Rica.

On leave from State College of Washington where he is Professor of Agricultural Economics; research includes preparation of maps showing capacity of land to support people, first on a regional basis as indicated by Agricultural Regions having similar amounts of land per farm family and second on an area basic which relates "productivity per person or per farm family" to land characteristics within one Agricultural Region (at present studying Costa Rica, with special stress on the Upper Reventazón drainage basin). Research also includes farm management and organization studies to show variations in financial success of farm families within an agricultural area as a result of variation in management.

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Doris Zemurray STONE, c/o United Fruit Co., San José.
Archaeologist; assistant in archaeology, Tulane University since 1930; member directing board of Radcliffe College and Escuela Agricola Panamericana of Honduras; presently Research Fellow in Central American Archaeology, Peabody Museum, Harvard University; author of papers on archaeology of Costa Rica and other Central American areas.

Leo Heinrich WAIBEL, Department of Geography, University of Wisconsin, Madison, Wisconsin.
Professor of Geography, University of Wisconsin; has published at least two papers on Costa Rica, including "White Settlement in Costa Rica," Geographical Review, Vol. XXIX, No. 4, October, 1939, pp. 529-560.

Government Agencies:

Instituto Geográfico Nacional, San José.
Despite its small size and limited resources, this is one of the most active government geographical agencies in all Latin America. Established as a result of a congressional law (No.59) approved July 3, 1944, the Instituto began operation in January 1945. It is charged by law with the performance of many tasks in cartography, geography, geodetics, geophysics, hydrography, geology, and related fields. The following summary was prepared for this report by Senorita Tulia Quiros Amador on instructions from Ing. Federico Gutiérrez Braun, Director del Instituto Geográfico.

"The agency whose duty it is to carry out cartographic work in Costa Rica is the Instituto Geográfico Nacional (IGN). This institution was created in 1944 and has the valuable cooperation of the Inter-American Geodetic Service, which is in charge of the triangulation of first order of the country.

"From 1945 to the present time (1951), the IGN has worked with great diligence and regularity, and its activities have been varied: Triangulation of the third order, precise leveling, topographic surveys, census maps, translation of geographic works, boundary demarcations, provision of the official time in accordance with the Bureau of Standards, Washington, D. C., U. S. A., etc. Its principal work, however, is that of covering the country completely with a triangulation net of the third order in order to make a definitive map of Costa Rica.

Work completed to date includes the following:

General Plan of the Border between Costa Rica and Panamá, Scale 1:400,000.
Physical Political Map of the Province of Guanacaste, Scale 1:200,000.
Political Map of Costa Rica, School Edition, Scale 1:1,000,000.
Map of Costa Rica, Telecommunications System, Scale 1:500,000.
Plan of the Reventazón River Region, Scale 1:25,000.

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Partial Plan of the Meseta Central, Scale 1:50,000.
Plan of the Meseta Central, Scale 1:25,000.
Map of Costa Rica, Provisional Edition 1949, Scale 1:400,000.
Plan of the Southern Area of theProvince of Heredia, Scale 1:25,000.
Plan of the City of San José, Scale 1:10,000.
Topographic Plan of the Metropolitan Area, Scale 1:10,000.

"The triangulation of the third order which has been completed covers an area of 5,000 square kilometers, with the discrepancy between the first and third order being only 1:24,000. As can be readily seen, this work is done meticulously and carefully, since the permitted discrepancy for the third order is 1:5,000. The geodetic positions of 100 points and more than 200 towns have also been calculated.

"The precise leveling has been executed on more than 1,500 kilometers, and more than 600 landmarks have been placed. A mareograph has been placed in each of the ports of Limon, Puntarenas, and Golfito. The lines of precise leveling are the following: Puntarenas-San José, San José-Puerto Limón, Palmar-Coto Junction, Coto Junction-Límites de Panamá, Cartago-Villa Mills, Villa Mills-San Isidro del General, Paraíso-Casimiro-Orosi-Paraíso Loop, Paraíso-Birris, Birris-Santiago, Birris-Juan Viñas, Juan Viñas-Infiernillo, Juan Viñas-Turrialba, Turrialba-Pejibaye, La Junta-Guápiles, Limón-Penhurst, Penhurst-Pandora, Monte Verde-Manila, Alajuela-Barranca, La Cruz-Peñas Blancas, La Cruz-Los Mojones, Barrance-La Cruz, San Isidro del General-La Uvita, La Uvita-Palmar Sur, San Isidro del General-Dominical, Cartago-Irazú, Naranjo-Venecia-Río Cuarto-Heredia.

"The census cartography was completed to provide the basic maps used for taking the 1950 census. It constitutes a collection of rapid surveys of the districts and cantons of almost the entire country, and includes details of distribution of dwellings and rural installations, such as coffee "beneficios", sugar mills, etc.

"There is also available a collection of aerial photographs supplied by the Inter-American Geodetic Service, which in the future will be used in photogrammetric work."

Ministerio de Economía y Hacienda, Dirección General de Estadística y Censos.

This agency publishes an annual statistical volume, among other things. It is charged with analyzing the returns of the 1950 Census and publishing the results. This census is thought to be the most accurate, and is the most elaborate, ever taken in Costa Rica. Within a short time a publication detailing the functions and services performed by this agency will be available.

Ministerio de Agricultura e Industrias, San José.

Several different departments are engaged in work of importance to geographers. For example, a soils survey is under way and there is a recently established meteorological service, and a growing

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interest in conservation of natural resources. Suelo Tico, information organ of the Ministry, published monthly, often contains articles of interest to geographers.

Museo Nacional, San José.

The museum has archeological and other collections of interest. Periodically it publishes material which is geographic in character.

Inter-American Institute of Agricultural Sciences, Turrialba.

The Institute has carried on a number of investigations of interest to geographers, especially in the Department of Agricultural Economics and Rural Life. Examples are the studies of coffee processing plants, panela (raw block sugar) processing plants, rural sociology and anthropology of the Turrialba Central District, the results of the Trial Census of 1948 taken in the Turrialba Central District, and farm organization and management of coffee farms. A weather station has been established as part of the Agricultural Engineering Department and a climatological laboratory for the study of effects of climatic factors on livestock has recently opened as part of the Animal Industry Department.

Private Organizations:

United Fruit Company, San José.

As a consequence of long established interests in Costa Rica the Fruit Company has accumulated a large store of information regarding natural conditions of areas occupied. It has also carried on extensive mapping activities in those areas.

Societies and Libraries:

Sociedad de Geografía e Historia, San José.

Despite its name, this society has published little or nothing geographical but has done some excellent work in history.

Biblioteca Nacional, San José.

One room houses the collection of Costa Rican material which Director Julián Marchena estimates to be 85 or 90 percent complete. This material is all catalogued. The library also has collections on other Latin American countries, but these are mostly grouped by country and not catalogued.

Palacio Episcopal, San José.

The library contains a large amount of church and historical materials. Permission to use the library must be obtained from Archbishop Victor M. Sanabria Martínez.

Private Libraries.

Those of Ricardo Fernández Peralta, San José, Luis Felipe González Flores, Heredia, and Jorge León Arguedas, Turrialba, are considered the richest in materials of interest to geographers. Some of these supplement materials in the Biblioteca Nacional. One of the best libraries is that of José Fidel Tristán, now deceased, but the library is still held by his family. The very excellent library of Luis Dobles Segreda, San Francisco de Heredia, was recently largely disposed of to the Library of Congress, U. S. A.

Other Libraries.

Those of the Inter-American Institute of Agricultural Sciences, Turrialba, the Museo Nacional, San José, the Colegio de Señoritas, San José, the Universidad de Costa Rica, San José, and the Colegio de [illegible], Cartago, contain varying amounts of geographical material.

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COLOMBIA[1]

GEOGRAPHERS IN COLOMBIA

For several reasons it is difficult to prepare a satisfactory list of Colombian geographers. In the entire country there are only a very few well trained persons who devote themselves full-time to the profession. A number of individuals are engaged in work of geographic nature on a part-time basis, a situation which is especially true of persons teaching geography in the secondary schools. Also, many educated people working in the social sciences, as well as in law, medicine, and engineering, regard themselves as competent geographers; and oftentimes, such individuals of broad interests have made material contributions to the geographical literature on certain areas or aspects of Colombia.

The following list of Colombian geographers has been compiled from information received through correspondence. Some of the names on the list probably should be deleted and others should be added to it. The people who have been included satisfy one or more parts of the following definition: A geographer is a person who has a higher degree in geography, or who writes geography, or teaches geography, or engages in geographic research.

Eduardo ACEVEDO LATORRE, Edificio Nacional; Monserrate, Oficina no. 508, Bogotá; home address, Carrera 4a, no. 22-26, Bogotá
Chief of the Cartographic Section, Censos Nacionales; principal past positions, Assessor of Geographical Studies, Contraloría ; fields of research, economic geography and cartography; areas of research, Cundinamarca, Chocó, Tolima and the Cauca Valley; Publications, -- Books, Diccionario Geográfico del Chocó, Diccionario Geográfico de Historia Nacional, Collaborating on Geografías Económicas del Chocó, Tolima y Cundinamarca; Articles, in the following publications: Boletín de la Sociedad Geográfica, Boletín de la Academia de Historia, Anales de Economía y Estadística, Daily newspapers of Bogotá.

Edmundo ANGEL MARECHA, Gimnasio Moderno, Bogotá, Colombia; home address, Calle 50 A. no. 13-62, Bogotá, Colombia.
Geographical Assessor, Contraloría General de la República; Principal past positions, Professor, Instituto Nacional "Nicolas Esguerra" Annex to the Escuela Normal Superior, and Gimnasio Moderno de Bogotá; Physical Geography and Economic Geography; Areas

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[1]This section was prepared by Professor Robert G. Long, Chairman of the Subcommittee on Colombia. The subcommittee chairman wishes to acknowledge the valuable assistance in the preparation of this report of Dr. Javier Pulgar Vidal, Censos Nacional de Colombia, Of. 807, Bogotá, Colombia. Helpful information was also obtained from Dr. James J. Parsons, Department of Geography, University of California, Berkeley, California; and, from Dr. Raymond E. Crist, Department of Geography, University of Maryland, College Park, Maryland.

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of research in The Departamento de de Nariño; Publications: Bulletins of the Contraloría General de la República dealing with economic geography.

Rafael BAQUERO H., Dirección Nacional de los Censos, Edificio Monserrate, Oficina 505, Bogotá, Colombia; home address, Calle 11 - # 17-37, Apartamentos 201, Bogotá.

Chief of section III (population), Censos Nacionales; Principal past positions, Director of the Socio-Economic Geographical section for Cundinamarca, Comptroller General of the Republic; Economic Geography; Areas of Research in Departamento del Cundinamarca; Publications, Books: (ready for press) Geografía Económico Social de Cundinamarca; Pamphlets: El alto costo de la vida. Causas y remedios, Bogotá, 1945; La guerra y el capital financiero, Bogotá, 1942; Articles: more than 200 relative to economic and social problems.

Luis-Antonio COBO, Edificio Monserrate, Oficina de Estudios Geográficos, No. 506, Censos Nacionales; home address, Carrera 2a. Este. No. 5-78, Bogotá, Colombia.

Chief of the office of geographical studies, Censos Nacionales; Principal past positions, Director of the schools "Rafael Pombo" and"Tomas Cipriano de Mosquera" in Popayan, and Departmental Inspector of education, Cauca; Economic Geography; Areas of research in the Departamento de Cauca; Publications, Thesis: Como debe cumplir su función social la escuela en Colombia.

Mario GALAN GOMEZ, Contraloría General de la República, Bogotá; home address, Carrera 18 No. 50-65, Bogotá.

Contralor General Auxiliar de la República; Principal past positions, Deputy to the Assembly of Santander , Secretary of the administration charged with the government of Santander, Comptroller General of Santander; Economic Geography; Areas of research in the Departamento de Santander; Publications, Geografía Económica de Santander, Regimen Fiscal de los Municipios de Santander, Historia de la Educación en Santander, La Concesion de Mares y Muchos sobre El Tabaco, and many publications in the field of economic and cultural geography.

Antonio GARCIA NOSSA, Instituto de Ciencias Económicas, Universidad Nacional,Bogotá; home address, Apartado Nacional 11-43, Bogotá.

Director of the Institute of Economics of the National University and Economic Advisor to the Comptroller General of the Republic; Principal past positions, Member of the economic committee of national defense, and economic advisor of the Ministery of Economics; Economic Geography; Areas of Research in The coffee regions of western Colombia; Publications, Geografía Económica de Caldas, Edic. de la Contraloría General de la República, Imprenta Nacional, Bogotá, 1937, Pasado y Presente del Indio, Edit. Centro, Bogotá, 1939, Esquema de la Economía Colombiana, Edic. Del Banco Central del Ecuador, Quito, 1940, Regimen Cooperative y Economía Latino-Americana. Ensayo do una concepcion organica y de un plan de reajuste, Edic. Fondo de Cultura Económica, Mexico, 1946, (Edic. Colombiana Espiral, Bogotá, 1947), Bases de la Economía Contemporanea. Elementos para una Economía de la Defensa, Edic. Revisoría Fiscal de Instituciones Oficiales de Credito, Bogotá, 1948.

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Daniel GIRALDO G., Liceo de la Universidad del Cauca, Popayán; home address, Liceo de la Universidad del Cauca, Popayán.
Professor in the Lyceum, University of Cauca; Principal past positions, Director of resident students, Lyceum, University of Cauca; Physical Geography; Areas of research in The Bogotá Savanna, The high plain of Popayán, and in Climatology; Publications, Apuntes fisiográficos sobre la Sabana de Bogotá, and Apuntes fisiográficos sobre la altiplanicie de Popayán.

Ramon Carlos GOEZ G., Hacienda Municipal, Medellín; home address, Administrador del Hotel Tropical, Carrera Brasil (#42) Casa #5726, Medellín.
Fiscal agent of the supervisor of the municipal treasury, Medellín; Principal past positions, Director of Public Education, Chocó, Rector of the Escuela Normal Central de, Bogotá, Rector of the Normal Nacional de Tunga, Rector of the Normal Nacional de Medellín, Rector of the Colegio Carrasquilla, Quibdó, Rector of the Liceo Departamental de Rionegro (Antioquia), National Inspector of secondary teaching, Professor, Sociology, National University, Civil adjunct of the Colombian-Swedish, and Ethnographic commission, which visited the eastern plains; Anthropogeography; Areas of research in All Colombia except Amazonía; Publications, Numerous articles in various periodicals: Bases para una Nueva Geografía de Colombia, Geografía de Colombia, Pub. by Fondo de Cultura, Geografía del Departamento del Chocó, (in preparation).

Ernesto GUHL, Escuela Normal Superior, Bogotá; home address, Calle 67 -. #10-90, Bogota.
Professor of geography and cartography, Escuela Normal Superior de Colombia, Bogotá; Principal past positions, Chief, Cartographic section, Comptroller General of the Republic; Cartography; Areas of research in The Colombian highlands, The sources of the Yurmanhui, The Sierra Nevada de Santa Marta, and other areas; Publications, Numerous articles in the Revesta de la Universidad Nacional, The Boletín de la Sociedad Geográfica de Colombia, and others.

Peregrino OSSA VARELA, Ministerio de Minas y Petroleos-Oficina #406, Bogotá; home address, Avenida 33, #13-19, Bogotá.
Ingeniero Subdirector del Servicio Técnico del Ministerio de Minas y Petroleos; Principal past positions, Chief Engineer of the Departamento de Tierras del Ministerio de Economía Nacional; Regional geography of Colombia; Areas of research in Tolima, Boyaca, Huila, and Chocó, The Santa Marta Region, and The eastern plains; Publications, Visita a la Costa del Pacifico, 1928, Monografía de Armero (Tolima), 1934, Geografía de la Intendencia Nacional del Meta, 1937, Medidad Agrarias Antiguas-Caballeria de Tierra, 1939, Monografía del Orocue (Boyaca), 1939, El Sarare, 1944, Monografía del Corregemiento de Nazareth (Bogotá), 1943, Exploración de las Vía Girardot Llanos Orientales, 1947, Monografía del municipio de San Francisco de Sales (Cundinamarca), 1949.

Manuel Francisco PEÑUELA VARGAS, Gimnasio Moderno, Bogotá; home address, Avenida 7, #4-31, Cúcuta.
Professor of geography, Gimnasio Moderno, Bogotá; Principal past positions, Professor of social science, Liceo de la Universidad del Cauca de Popayán; Physical and economic geography; Areas of

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research in Norte de Santander and the Departamento de Cauca; Publication, Geografía Humana del Norte de Santander, a section of the Geografía del Norte de Santander, Vol. 1, published by the Contraloría Departamental.

Alfredo PORRAS ROJAS, Censos Nacionales, Edificio Monserrate, Oficina 506; home address, Calle 3 # 320 y 3-22, Bogotá.

Investigator, Censo de los Recursos Naturales de Colombia; Principal past position, Professor of geography, Institute Nicolas Esguerra, Bogotá; Regional Geography; Areas of research in Sierra Nevada de Santa Marta, Departamento de Santander; Publications, Hoya del río Suarez, Géneros de vida del campesino Santandereano, La caja del Credito Agrario y el campesino, Viviendas campesinas de Santander.

Javier PULGAR VIDAL, Censos Nacional de Colombia Bogotá, Oficina 807; home address, Calle 18, #15-47, Bogotá.

Asesor del Censo, Recursos Naturales de Colombia, Bogotá; Principal past positions, Professor of human and Peruvian Geography and Archaeology at the Pontificia Universidad Católica de Lima, Perú, Professor of history and geography in the Colegio Universitario de la Universidad Nacional Mayor de San Marcos de Lima, Perú, General Secretary and founder of the Institute de Geografía de la Universidad Nacional Mayor de San Marcos, Lima, Perú, Principal Analyst, National Planning Association, Washington, D. C., Director of the Court for the House of Deputies of Peru, Director of the public library of the Peruvian Congress; Human Geography of South America; Areas of research in The Andean section of Colombia, Ecuador, Perú and Bolivia; Publications, Books: Ensayos Geográfico, 3 volumes, 1938, 1939, and 1941, Lima Perú, Las Ocho regiones naturales del Perú, Lima, 1948, Historia y Geografía del Perú, Lima, 1946, El Hombre, la gea y la historia del, Perú, Lima, 1948; Periodicals: Numerous articles in the following -- Revista de las Universidad Católica de Lima, Revista Letras de la Facultad de Letras de la Universidad Nacional Mayor de San Marcos de Lima, Boletín del Museo de Historia Nacional de la Universidad de San Marcos, Boletín de la Biblioteca Pública, Pública de la Camara de Diputados del Perú, Boletín de la Sociedad Geográfica de Lima, Boletín del Departamento de Informaciones Comerciales del Ministerio de Relaciones Exteriores del Perú, Revista de America de Colombia.

Justo RAMON, home address, Libreria Stella, Carrera 6a, #10-40, Bogotá.

Vice-rector of the Colegio Provincial de Pamplona (Norte de Santander); Principal past positions, Vice-rector of the Colegio de San José de Guanetá en San Gil (Santander); Geography of Colombia; Areas of research in the Departamento de Cundinamarca; Publications, Books: (Teaching Manuals): Geografía de Cundinamarca, Geografía de Colombia, 1 er curso, Geografía de Colombia, 2º curso, Geografía Superior de Colombia, Geografía Moderna, física, general, Geografía de Colombia, nociones de Geografía Universal, Antiquo Continente, Oceania Regiones, Polares, Geografía de America, Historia de Colombia.

Jose Ignacio RUIZ, Instituto Geográfico Militar y Catastral, Bogotá; home address, Calle 52 #19-24, Bogotá.

Director of the Instituto Geográfico Militar y Catasdral; Principal past position, Chief of the section of Geodesy, Instituto Geográfico Militar y Catastral; Astronomy and geodesy; Areas of

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research in the Bogotá and Cartago areas; Publications, Pamphlets: Desviación de la vertical, Criterio de Precisión en la proyección de redes geodésicos, Various articles dealing with geodetic control and surveying.

Belisario RUIZ WILCHEZ, Observatorio Astronomico Nacional; home address, Avenida 40 #14-53, Bogotá.

Director of the Astronomical Observatory and President of the Academía Colombiana de Ciencias Exactas, Físicas y Naturales; Principal past positions, Decon of the faculty of mathematics and engineering, National University of Colombia, Founder and director of the geographical military institute of Colombia, Member of the Office of Longitudes, Chief of the Colombian boundary Commission-limites with Brazil, Chief of the Colombian group of the Atrato-Truando interocean canal commission; Cartography; Areas of research in nearly all of Colombia; Publications, Maps of various departments of Colombia, Catalogo de Estrellas para determinación de la hora por el methodo de 'Zinger', Tablas de reducción.

Guillermo SARMIENTO SUAREZ, Censos Nacionales Edificio Monserrate, 5°, Bogotá; home address, Carrera 18 #50-65, Bogotá.

First Investigator of geography, National Census; Principal past positions, Professor in the Instituto Industrial de Bucaramanga, Professor in the Instituto Nicolas Esguerra-bachillerato de Bogotá; Economic Geography; Areas of research in The Departamento de Santander, The Departamento de Boyacá, and in The Sierra Nevada de Santa Marta; Publications, The following studies have been completed, but not published: La Immigración en Suramerica, Las transportes en Colombia, Las Problemas Geográficos y la Geografía de Santander, Estudio de Nomenclatura de los municipios Colombianos.

Rafael TOVAR ARIZA, Universidad del Atlántico, Calle 68 #53-45, El Prado, Barranquilla; home address, Edificio O. K., Dep. #67, Barranquilla.

Rector of the Universidad del Atlántico; Principal past positions, vice-rector of the Colegio de Barranquilla, and Secretario Facultad Letras of the Universidad Javeriana; Physical Geography, especially geomorphology, and human geography; Areas of research in Atlántico, Cundinamarca, Santander, and Tolima; Publications, Pamphlets: Geología Pintoresca del Departamento del Atlántico; Articles: Geomorfología del río Magdelena, published under the title "Alma y Paisaje del río Magdalena" in the Revista Colombia de la Contraloría General de la República, Causas de la Disolución de la Gran Colombia, Revista de Indias #8, enero 1938, Nombres antiquos del río Magdalena, in volumen de Conferencias de la Academía de Historia, Disertación sobre el R. P. José Guilla, autor de el Orinoco Illustrado, in Volumen de Conferencias de la Academia de Historia, El Coloniaje (Thesis for the doctorate in philosophy and letters, Universidad Javeriana).

Pablo VILA, Instituto Pedagógico, Departamento de Ciencias Sociales, Caracas, Venezuela.

Publications, Nueva Geografía de Colombia, Bogotá, Libreria Colombiana. 1945.

It may be helpful to pick out from the above list the names of geographers

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who have been outstanding in the profession.

NAME	MAJOR INTEREST
Eduardo ACEVEDO LATORRE	Cartography
Ernesto GUHL	Cartography, regional geography
Javier PULGAR VIDAL	Human geography
Pablo VILA	Regional geography

Again it should be stated that there are a number of persons who are accomplishing valuable independent research in fields related to geography. Such people with geographic bent include: Juan Friede of San Agustín, Huila, a trained historian, and archaeologists and anthropologists such as Hernandez de Alba and Roberto Pineda Giraldo.

GEOGRAPHIC WORK IN GOVERNMENT AGENCIES

Several agencies of the Colombian Government are carrying on important geographical work. The Contraloría General de la República has done a very creditable job with its series of economic geographies. An example of this type of publication is: Marciales, Miguel (ed.), Geografía Historica y Económica, Norte de Santander. Tomo Primero. Bogotá: Editorial Santafé. 1948. 443 pp. In preparation for the 1950 Census, the Contraloría General established sections in the Censos Nacionales devoted to Geo-cartografía, Geografías Económicas, Población, and Censo de los Recursos Naturales. The address of the Censos Nacionales is Edificio Monserrate, Bogotá, Colombia.

In the field of mapping the Instituto Geográfico Militar y Catastral, an agency of the Ministerio de Haciendo y Crédito Publico, is of outstanding importance. Founded in 1935, the Instituto, with a staff of about 300 workers, is directed by José Ignacio Ruiz. One section of the Instituto is given over to the study of soils. It coordinates the work being done in each municipio and maintains a laboratory for soil analysis. The Sección de la Carta, composed of five groups, does the basic work necessary for the production of maps. Geodetic surveys have been run for an area of 118,400 square kilometers; 1,350 stereoscopic points have been determined; and, areal photographs have been flown for 153,000 square kilometers. The Instituto has set up a ten year plan for surveying, photographing and mapping the country. Three zones, each to be mapped on a different scale, have been delineated: Zone I, the most developed portion of the country, is to be mapped on a scale of 1:25,000; Zone II, sea coasts and frontiers, 1:100,000; and Zone III, eastern and southern portions of the country, 1:500,000. The principal maps which have been produced by the Instituto are as follows:

MAP	SHEETS PUBLISHED	SCALE
Municipio maps -- Cundinamarca and Tolima, series incomplete. 25 meter contour interval.	80	1:25,000
Carta General de la República de Colombia. incomplete. 100 meter contour interval.	several	1:100,000
Map of Colombia -- 1950.		1:2,500,000
Mapa isogónico de la República de Colombia -- 1945		1:5,000,000
Mapa gravimetrico y Anomalia de la Gravedad en el pais -- 1945.		1:5,000,000

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The Oficina de Longitudes of the Ministerio de Relaciones Exteriores had put out the following:

MAP		SCALE
Series of maps by departamentos -- 15 departamentos, eastern portion of Colombia not covered.	1928 to 1941	1:500,000
Mapa de la República de Colombia. nine sheets.	1920.	1:1,000,000
Mapa de la República de Colombia. one sheet.	1939.	1:2,000,000
Arreglo de limites entre la República de Colombia y la República de los Estados Unidos de Venezuela.	1943.	numerous large scales.

A geological map of Colombia (1:2,000,000) was published in 1943 by the Servicio Geológico Nacional of the Ministerio de Minas y Petroleos. Road maps have been put out by both the Instituto Geográfico Militar y Catastral and the Ministerio de Obras Publicas.

No information was received about the work of the Instituto Etnológico Nacional.

GEOGRAPHY IN EDUCATION

There is little opportunity in Colombia for training in geography at the college or university level. The Escuela Normal Superior de Colombia in Bogotá, formerly a part of the National University, does offer courses in geography and cartography. (Guhl) However, no geography is taught now at the University, and with the possible exception of an elementary course, apparently not at any other institution of higher learning. Most of the people interested in and working in the field of geography received their training along other lines.

In the secondary (high) schools geography is taught in each of the four years leading to the Elemental Baccalaureate. During the two additional years required for admission to higher normal school or university work, no geography is included in the program.

GEOGRAPHIC SOCIETIES

The Sociedad Geográfica de Colombia was founded in 1903. It publishes a Boletín of which seven volumes have been issued since 1924. There are several types of membership, and almost anyone interested in geography can belong. The Society awards medals for outstanding work in the field of geography. Address: Observatorio Astronómico, Carrera 8a, No. 8-00, Bogotá.

FOREIGN GEOGRAPHERS

Although several texts have been written on the geography of South America and Latin America, relatively few geographers have concentrated their efforts on Colombia. At present, there are only three North American geographers who are doing active work in Colombia and who have visited the country recently.

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They are:

1. Raymond E. Crist -- Department of Geography, University of Maryland, College Park, Maryland.
2. James J. Parsons -- Department of Geography, University of California, Berkeley, California.
3. Robert C. West -- Department of Geology and Geography, Louisiana State University, Baton Rouge, La.

It should be pointed out that there are persons in other fields who have done work of geographical nature in Colombia. Robert C. Murphy, Chairman, Department of Birds, American Museum of Natural History, is interested in zoogeography and oceanography. He has published papers in the Geographical Review (Vol. 29) which describe the not-too-well known Colombian Pacific coast. Robert C. Beyer, Department of History, University of Miami, Coral Gables, Florida, has done excellent work on the history (historical geography) of coffee-growing in Colombia. Among the physical scientists there are several who have recently been in the field. Three workers representing this group, all at the University of California, are: Hans Jenny (soils), Herbert Mason (Paleobotany), and R. A. Stirton (Paleontology).

Apparently, at the present time, there are no European geographers especially interested in Colombia.

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GEOGRAPHIC AND CARTOGRAPHIC WORK IN VENEZUELA[1]

The center of geographical activities in Venezuela at the present time is the Dirección de Cartografía Nacional of the Ministry of Public Works. There has been developed in this department a group of some 300 people who are actively engaged in the production of a map of the country, and are producing excellent maps. Geography is taught in primary and secondary school, normal schools, and in the History section at the Universidad Central de Venezuela, but the subject has not as yet reached the departmental status. Though there are a number of interested and enthusiastic individuals who devote at least part of their time to geography, their professional status is, with few exceptions, not that of professional geographer with full time or nearly full time devoted to this subject. In allied fields, such as geology and forestry, materials of interest to the geographer are being produced, but by individuals who do not call themselves geographers.

GEOGRAPHY

Individuals with Geographical Interests in Venezuela:

The following list includes individuals with at least part time devotion

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1. This report was prepared by Dr. Charles B. Hitchcock, Chairman of the Subcommittee. The present report is to be considered in the nature of a preliminary statement, subject to check by collaborators. Without the active cooperation of numerous Venezuelan colleagues it would have been impossible to prepare this statement. Particular recognition is extended to Dr. Luis Felipe Vegas, Chief of the División de Geodesia, Cartografía Nacional, and to Colonel Juan Jones Parra who accepted the invitation to assist as collaborators. Dr. Vegas, with Doctors Luis Calcaño, Oscar Oyarzábal, Miguel de Lemos and Hugo Vivas of Cartografía Nacional collected the basic information on cartography; Colonel Jones Parra prepared the statement on geographical education and furnished the list of individuals in the geographical field as well as the list of institutions with geographical interests. In addition the following persons assisted in the preparation of this preliminary report: Dr. Gerardo Budowski, Oficina Técnica, Dirección Forestal M. A. C. who contributed the section describing the work of that office; Dr. Lewis Hanke, Director, Hispanic Foundation, Library of Congress, Washington, D. C.; Professor Earl Parker Hanson, University of Delaware, Newark, Del.; Capt. Francisco R. Marin S., Servicio de Meteorología y Comunicaciones, Maracay; William H. Phelps, Jr., Caracas; Raye R. Platt, American Geographical Society, New York; Dr. A. Schwarck Angledo, Dirección de Geología, M. M. H.; Professor Pablo Vila, Instituto Pedagógico, Caracas. Information was also furnished by the Creole Petroleum Company, the Shell Caribbean Petroleum Company, and the Socony Vacuum Oil Company of Venezuela.

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to geographical teaching and investigation who have received the title of Professor of Geography and also certain others, though not geographers by profession, who have made notable contributions to geographical knowledge of the country.

A number of geologists in addition to employees in the government Dirección de Geología have made notable contrbutions to the field, including: Dr. Santiago Aguerrevere (Obras de Riego, M. O. P. listed under cartographers); Dr. Victor M. Lopez, geologist and consulting engineer; Francis Ivan Martin, Manager of the Land and Engineering Dept., Socony Vacuum Oil Company of Venezuela; and Dr. Guillermo Zuloaga, well-known petroleum geologist now in administrative capacity with the Creole Petroleum Corporation, who also made original investigations in the iron region of Bolivar state. Foresters who have made notable contributions are listed in the section on cartography: Dirección Forestal.

Jesús Antonio COVA. Academía Nacional de Historia, Caracas. Has been Profesor de Geografía de Venezuela, in several national institutions. Member of Academía Venezolana de la Historia, Royal Geographical Society of London, and the Geographical Society of Bahia, Brazil, corresponding member of the Instituto Geográfico de Novara, Italy. Made study of secondary education in the Colegio Federal of Cumaná. Author of: Geografía Física y Política de Venezuela, official text in primary schools; Geografía Física, Política, y Económica de Venezuela, official text for colleges lyceums of secondary education.

Dr. Francisco J. DUARTE, Av. los Pinos, El Paraiso, Villa Francis. Director of Frontiers, Ministerio de Relaciones Exteriores. Member of Colegio de Ingenieros, member of Academia de Ciencias Físicas, Matemáticas y Naturales, both Venezuelan, and of numerous academies and scientific societies in America and in Europe. In 1920, published in Paris Détermination des Positions Géographiques par les Methodes des Hauteurs Egales. (Also listed under "cartographers in government institutions").

María HERMANO NECTARIO, Colegio La Salle Sebucán, Los Dos Caminos, Estado Miranda. Professor in Geography and History of Venezuela and of mineralogy and Geology in the Curso Normal of the Colegio La Salle de Sebucán. Formerly a professor of the Geography and History of Venezuela for 35 years and of Minerology and Geology for 10 years at the Instituto La Salle, Barquisimeto, Ven. Has published numerous books and pamphlets of which the most important are: Historia de América; Historia Elemental de Venezuela; Historia Superior de Venezuela; Geografía Elemental de Venezuela; Geografía Superior de Venezuela; Mapa Físico, Mapa Política and Mapa Físico y Político (of Venezuela); Lecciones de Geología; Prácticas de Mineralogía; and more than 30 pamphlets on geographical and historical subjects; also conferences and articles for newspapers and reviews.

Doctor y Coronel Juan JONES PARRA, 3ª Transversal No. 9 - La Castellana, Chacao, Estado Miranda. Doctor in Political Sciences of the Universidad Central de Venezuela (1935). Named Profesor de Geografía de Venezuela in the Escuela Normal de Hombres of Caracas

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(1920) and later Profesor de Geografía Militar in the Escuela Militar in the Escuela Militar de Venezuela of which he was the Director. Corresponding Member of Academia de Historia y Geografía of Mexico in which country he served as Venezuelan Ambassador; National Geographic Society of Washington; American Geographical Society of New York. Geographical publications include: Anotaciones Pedagógicas (Methodologies on history, geography, and physical education, 1925); Geografía de Venezuela (Secondary course, 1929); Geografía Física Universal (1929); Geografía de Venezuela (elementary course, 1929); Atlas Escolar de de Bolsillo de Venezuela (1929); A second edition of Geografía de Venezuela (elementary course) was published in 1942.

Presbítero y Doctor Manuel MONTANER. Instituto Pedagógico Nacional, Caracas. Profesor de Geografía de Venezuela in the Instituto Pedagógico Nacional, a chair which he also holds at the Liceo Fermín Toro de Caracas; In the Instituto Pedagógico, is also Chief of the Departamento de Pedagogía. Publications: Geografía General; Geografía de América; Geografía Económica de Venezuela; Geografía Física de Venezuela.

William H. PHELPS. La Casa Blanca. Avenida del Paraíso, Caracas. B. S. Harvard University. Ornothology. The Colección Phelps (Birds) has more than 60,000 specimens arranged for scientific study. Has publsihed books and articles as sole author and with his son, William H. Phelps, Jr., and with other scientists on birds of Venezuela (taxonomy, distribution). With his son has published recently Lista de Aves de Venezuela con su Distribución.

William H. PHELPS hijo. Quinta Yaví, Caracas Country Club, Caracas. B. S. Princeton University. Principal collaborator with his father in their important research of the bird life of Venezuela. Has organized and conducted ornithological expeditions into many parts of Venezuela and obtained geographical information concerning previously little-known or unknown parts of the country. Autnor of numerous ornithological papers.

Dr. Eduardo ROHL. Caracas Country Club, Caracas. Dr. H. C. Universidad Central, Caracas and University of Puerto Rico. Director, Observatorb Astronómica y Meteorológico Cajigal. Miembro de Numero Academia Venezolano de la Historia and of the Academia de Ciencias Físicas, Matemáticas y Naturales. Numerous publications, including: La Fauna Venezolana; Altitud de la Ciudad de Caracas; Contribución al conocimiento del Clima de Caracas; Contribución a la Ornitología de Venezuela; La Altura de Ciudad Bolívar y San Fernando de Apure; La Silla de Caracas y el Pico de Maiguatá; Nuevas Tablas Barométricas; Alejandro de Humboldt.[2]

Profesor Ernesto SIFONTES. Estación Hidrográfica y Meteorológica, Ciudad Bolívar, Estado Bolívar. Director of above-mentioned service. Numerous

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2. Also listed under "Cartographers in Government Institutions".

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publications of which the following are the most important: Contribución al Estudio de la Meteorología Tropical; El Orinoco; Un Ano de Vida de Nuestra Grande Arteria Fluvial (1924); El Regimen de la Lluvias en Venezuela; Venezuela Meteorológica; Los Vientos de Verano; Hidrología Venezolana; Notas Breves para la Meteorología y la Hidrografía del Rio Caroní: Nubes y Petróleo.

Doctor Pascual VENEGAS FILARDO. Universidad Central de Venezuela, Caracas. Lawyer and Profesor de Geografía Económica de Venezuela, Prof. de Historia Económica de Venezuela in the Facultad de Ciencias Económicas y Sociales, Universidad Central; also Profesor de Geografía Humana de Venezuela in the Faculty of Philosophy and Letters of the same university; Director of the Comisión de Geografía Física of the Venezuelan section of the Interamerican Society of Anthropology and Geography; member of the Comisión Indigenista Nacional. Publications include: Introducción a la Geografía Económica del Estado Lara; Principales clasificaciones que por Regiones han hecho en el País Geografos, Naturalistas y Economistas; Contrastes entre la División Político-Administrativa del País y la División Regional; Función Económica de las Fronteras en Venezuela; Monografía Geográfica de Puerto La Cruz; Influencia de los Ferrocarriles en la Producción Nacional; Notas de Economía Colonial Venezolana; Valor de la Botánica y de la Zoología en la Geografía Económica de Venezuela.

Doctor Marco A. VILA. Corporación Venezolana de Fomento. Graduate from the Faculty of Political and Social Sciences, University of Barcelona, Spain. Professor of General Economic Geography in the Facultad de Ciencias Económicas y Sociales and the Facultad de Geografía de America in the Facultad de Filosofía y Letras, both belonging to the Universidad Central de Venezuela; Chief of the Department of Geography of the Corporación Venezolana de Fomento. Anthropology and Geography and of The Atlantic Union of Economical Geographers. Publications include: Nociones de Geografía Universal (1947); Monografía Geográfica del Valle de Caracas (1947); Venezuela (1948); Los Llanos de El Cenizo (1949); Vías de Transporte de Guayana (1950); Las Regiones Naturales de Venezuela (1950); Aspectos Geográficos del Táchira.

Profesor Pablo VILA. (Spaniard) Instituto Pedagógico Nacional, Caracas. Dedicated to teaching since 1902 and a professional geographer for some 30 years. Founded and directed institutions for teaching in Barcelona, Spain (where he was born) and in Bogotá, Colombia. Chief of the Department of History and Geography in the Instituto Pedagógico Nacional, Professor of General Geography in the same institute and Chief of the Commission created by the Ministerio de Educación Nacional for the compilation of a Geography of Venezuela. Major works: Geografía Física y Astronómica; La Cerdanya; Resúmen de Geografía de Catalunya; Nueva Geografía de Colombia. Has published numerous geographical articles in Colombia, Venezuela, and Europe.

Government Agencies Carrying on Geographical Studies or Sponsoring Publications of Geographical Interest:

Corporación Venezolana de Fomento. Monthly Boletín.

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Fuerzas Aéreas. Servicio de Meteorología y Comunicaciones (See under Cartography).

Ministerio de Agricultura y Cría. Various publications. This Ministry has four major divisions and two semi-autonomous divisions (Agricultural bank and agrarian institute).

1. Agriculture: agricultural extension work, vocational work, agricultural research, administration of agricultural schools.
2. Livestock: Inspection service, livestock research, production and sale of breeding stock.
3. Agricultural economics: fisheries regulations, agricultural marketing, agricultural and economic investigations and surveys.
4. Forestry: administration of public lands, regulation of forests and waters, soil conservation, forest investigation.

Two series of publications of interest to geographers are: Boletín published by the División de Extensión Agrícola (Titles: Las Semillas, El Algodón, El Maní, etc); a series of short monographs on plant distribution, with maps, prepared in the forestry division and being issued by the Departamento de Divulgación Agropecuaria. (See note under Dirección Forestal: Oficina Técnica, in Cartography section.)

Ministerio de Fomento.

Dirección General de Estadísticas y Censos Nacionales. Published: Annuario estadístico de Venezuela, Revista de Fomento (Quarterly), Boletín mensual de estadística, Estadística Mercantil y Marítima, Indicador Nacional de vías de comunicación, División político-territorial de la República, Guía industrial y comercial de Venezuela, Nomenclador general de area y lugores habitados, Censo nacional de población, Diversos aspectos de la economia Venezolana, etc.

Ministerio de Minas y Hidrocarburos.

División de Geología.

Ministerio de Obras Públicas. Various publications.

Departments and Autonomous Institutes, particularly Dirección de Carreteras, de Puerto y Aeropuertos, de Obras de Riego, de Cartografía Nacional, Comisión Nacional de Urbanismo, Consejo Nacional de Vialidad (Plan preliminar de Vialidad. 1950).

Ministerio de Relaciones Exteriores.

Tratados Públicos y Acuerdos Internacionales de Venezuela.

Ministerio de Sanidad y Asistencia Social

Publicaciones de la División de Malariología. (No. 8 is Datos detallados de climatología de Venezuela.)

División de Epidemiología y Estadística Vital. Anuario de epidemiología y estadística vital.

Conferences and Commissions:

Tercera Conferencia Interamericana de Agricultura. July 24 - August 8, 1945. 80 bulletins on national problems have been published to date (March 1951). Additional volumes are still in preparation. This is one of the most important series of publications dealing with Venezuelan geography.

Comisión Indigenista. This commission was created on January 21, 1948, to

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deal with Indian problems. Noticia sobre el problema indígena en Venezuela, 1948, was the first publication, and is largely a photographic record.

Venezuelan Institutions With Geographical Interest:

Venezuela has no Geographical Society. The Sociedad Venezolana de Ciencias Naturales in Caracas, however, hold meetings at which geographical topics are discussed, and its Boletín publishes many articles of geographical interest. Its library is apparently the only one in the country with scientific material of consequence.

Academia Nacional de la Historia. Caracas, Venezuela. Maintains a small library, with emphasis on the history of Venezuela. This collection is dependent upon gifts, and as a result cannot be considered as a good working collection. 33,000 volumes (1947); publishes Boletín.

Academia de Ciencias Físicas, Matemáticas y Naturales. Caracas.

Centro Historico Laranse. Barquisimeto, Estado Lara.

Ciudad Universitaria: Facultad de Ciencias Económicas y Sociales. Caracas.

Instituto Panamericano de Geografía e Historia: Comité Venezolano. Academia de la Historia. Caracas.

Instituto Pedagógico, Caracas. Publishes Anales.

Museo de Ciencias Naturales. Caracas.

Sociedad Bolivariana de Venezuela. Cují a Salvador de León No. 6, Caracas.

Sociedad Interamericana de Antropología y Geografía: Sección Venezolano. Museo de Ciencias Naturales, Caracas. A Bulletin: Acta Venezolana; also Publicaciones del Grupo Local de Caracas, a series of monographs.

Sociedad Venezolana de Ciencias Naturales. Avenida Carabobo, El Paraíso, Caracas. Probably the best collection of scientific material in Venezuela. Publishes: Boletín de la Sociedad Venezolana de Ciencias Naturales.

Sociedad de Ciencias Naturales. Instituto La Salle, Caracas. Publishes a Memoria with useful articles on geography, folklore, biology, zoology, pedology, etc.

Universidad Central de Venezuela: Facultad de Filosofía y Letras, Sección de Historia. Caracas. University archives, and a new and small library. (For details of curriculum, see section on "Present day geography in the schools.") (Approx. 3,500 students.)

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Universidad de los Andes. Mérida, Estado Mérida, Venezuela. The Biblioteca Universitaria, founded in 1886, contained approximately 5,000 volumes in 1938. Of particular interest to geographers is the forestry course now being given at the university. University has a school of physical and mathematical sciences, but no geography. (Approx. 750 students.)

Universidad del Zulia. Maracaibo, Estado Zulia, Venezuela. (Approx. 375 students.)

The Capuchin Fathers publish a small monthly magazine, Venezuela Misionera (P. P. Capuchinos, Las Mercedes, Apartado 261, Caracas) which contains many references of national geographical interest. The Meteorological Station at Ciudad Bolívar has a specialized library; and there are a few other small libraries throughout the country for which information is not on hand.

National Archives and National Library:

Archivo Nacional, Caracas. Director: Dr. Héctor Garcia Chuecos. The principal collection relates to the colonial history of Venezuela. It publishes Boletín del Archivo Nacional with considerable information on the collection, including indexes.

Biblioteca Nacional, Caracas. Director: Dr. Enrique Planchart. This library was founded in 1874 and contains around 100,000 volumes (93,500 in 1947). It is the largest and most important collection in Venezuela, but is not a really good "working" collection. Rather well catalogued. A recent significant acquisition was the Rudolph Dolge Collection of Venezuelan material. Publishes Boletín de la Biblioteca Nacional; Anuario Bibliográfico Venezolano.

The Development of Geographical Instruction in Venezuela:[3]

The evolution of the teaching of geography in Venezuela presents characteristics not fundamentally different from those in other Hispanic American countries. In this teaching, the pedagogical concept has been more influential, rightly or wrongly, than the scientific concept. Thus geography was the simple teaching of names of places and features, with some idea of their location, as in the eighteenth century; or of pure description, more or less literary in style, as in the mid-nineteenth century. Such was the case even when geography had become an integrated discipline, though not, as yet, a rationalized science employing the cartographic representation of phenomena. In every way, teachers and authors of school texts lagged behind geographical progress. This is

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3. The statement on The Development of Geographical Instruction was prepared in Spanish by Prof. Pablo Vila and published as "Ensayo sobre los Estudios Geográficos en Venezuela" (in Educación Revista para el Magisterio. No. 56, Agosto-Setiembre de 1948. Minist. de Educacion Nacional. Caracas, Venezuela). It was submitted at the request of Dr. Juan Jones Parra and translated and somewhat abridged, by the Chairman of the Sub-Committee on Venezuela.

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what one notes on examing Venezuelan school legislation and texts from the time of Independence until well into this century.

The beginnings of geographical teaching: Feliciano Montenegro Colón: In the Law of March 13, 1826, dictated by General Santander Vice President of Colombia at that time, the teaching of geography was recommended even in the primary school. Shortly before this, a small anonymous work of semi-official character, Noticia sobre la geografía política de Colombia was published, editions of which appeared in Bogotá, London, Caracas, and New York between 1825 and 1827. As announced in the frontispiece of this little book, the text was "designed for elementary teaching".

In spite of the fact that geography as a subject for school study was not specified in the legislation of Venezuela until the Law of June 30, 1858, where it appeared in Secondary Instruction under the heading, Elements of History and Geography, from 1826 on, it was represented in the higher curricula in secondary schools and in the universities, accompanied by chronology -- a union which indicates that geography was taught as an auxiliary, and that "Geography and Chronology are the two eyes of History".

It was introduced in some private colleges and even in certain sectional public colleges and schools. For example, the Provincial Committee of Barinas in an ordinance of 1835 directs the teaching of "some elements of Geography, principally with respect to all America". And even before this the Deputation of Mérida, had directed in 1831 that "The Geography of Venezuela and other parts of Colombia" be taught.

These forerunners and others of similar nature owed their stimulus to the above-mentioned anonymous little work and to Elementos de geografía astronómica, física y política, precedidos de un breve compendio de cosmografía, published in 1831 and signed "The Editors".

Both "rudiments" are attributed very reasonably to Feliciano Montenegro Colón, to whom we are indebted also for Geografía general para el uso de la juventud de Venezuela, in four volumes, published between 1833 and 1837, each volume of more than 500 pages. Three of the volumes deal with regional geography and the geography of America -- with historical interpolations -- and the fourth deals with the history of Venezuela as an introduction to the geography of Venezuela, which was to form two additional volumes, compiled but never published.

Montenegro's Geografía general (without author's name but acknowledged by him in an extensive bibliography in the National Archives), is in the descriptive style which the French geographer, Malte Brun, had put in vogue. Burn's influence is acknowledged in the preface to the Elementos, together with an indication that extracts have also been taken from Humboldt and Letronne, authors of thoroughly opposed geographical views.

All in all, in spite of being a study prepared from secondary sources, it has the special distinction of presenting in the form of a manual for children a geography of America, well documented and clear, from what one is able to judge from the 200 pages on Nueva Granada. This study could

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have acted as a stimulus to geographical studies in Venezuela, but it had little circulation in spite of being cheaply priced as the result of official publication; only 500 of the edition of 2,000 copies were sold, and the remaining volumes were finally distributed in 1847 among public offices and educational institutions.

Contributions of Agustín Codazzi: Already the country had made what were for the time new national geographical landmarks with the publication of the great Atlas de Venezuela (1840), a Mapa general de Venezuela (1841), "six and one half feet long and four feet high", and the Resumen de la geografía de Venezuela, all prepared for the government by a Colonel of Engineers, Agustín Codazzi.

The atlas must have been one of the first national atlases, if not the first, for a South American country. This cartographic achievement could have been transferred into simplified wall maps and cartographic illustrations in the textbooks as visual aids to teaching; but the advantage of these uses was not to be realized until much later. And as Codazzi's Atlas was of large format, it ended by being more fit for libraries than schools. Further, of the 2,000 copies published, 1,322 were ill-advisedly sold at public auction.

The Resumen de geografía, as the author notes in the frontispiece, was prepared on the plan followed by the Italian geographer, Balbi (Abrege de geographie, Paris, 1832) and was based on practical knowledge acquired by the author during the operation of the Chorographic Commission entrusted to him by the Venezuelan Government. In the style of Malte Brun, the Resumen was an enumerative and descriptive text which gave a rather precise and careful picture of the country and consequently, together with the elements of the Atlas and the Mapa, could have constituted a good basis for the development of geographical studies, and would have enlivened school geography. But as yet, geography in Europe had not departed from its more or less literary phase, and within Venezuela the political-personal conflicts, at times reaching war-like proportions, absorbed attention. In truth, Venezuelan geography remained static with the work initiated by Montenegro and Codazzi. The latter's book, with sectional and statistical modifications, served as a base for all school texts for more than 80 years.

Codazzi, who truly originated the National Geography of Venezuela, contributed on the other hand, with the good intention of giving additional service to the country, to the fragmenting of geography in the schools and to the cultivation of memorization instead of understanding and reason, with his Catecismo de la geografía de Venezuela para el uso de las escuelas primaries. The first edition, printed in Paris in 1841 without illustrations, is not available for examination. The second edition was printed by Tomás Antero in Caracas at the end of 1855, and comprised 86 pages. The text book took the form of questions and answers. The answers are purely definitive or enumerative, especially in the pages devoted to mathematical and physical geography and general geography. In the remainder of the text, which deals with Venezuela, the answers are at times descriptive but are always without elaboration. Doubtless Codazzi could not carefully plan his little study, since in the short time he was in Paris other geographical and historical works with whose publication he had been entrusted engaged most of his attention.

Introduction of foreign texts: The device of questions and answers was in fashion as a method of teaching in school texts of the period. Thus there were then introduced into the country the [illegible] also

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employing the question-and-answer technique. European editors made use of these studies "translated from the English and adapted to the use of schools of America" (Smith, Asa: Primer libro de geografía de Smith o geografía elemental dispuesto para los niños. 19th Edition. Garnier, Hermanos, Paris -- without date) in order to introduce them and disseminate them throughout the Hispanic-American market. But at times national publishers reproduced them, adding to them "elements of national geography". (Smith, Asa: Primer libro de geografía de Smith o de geografía elemental con diez mapas -- dispuesto para los niños. Notablamente aumentada, acompanada de un mapa grande de Venezuela y con nociones de geografía patria. Edited by Julio Castro, Valencia, Venezuela, without date. There is an edition dated 1911).

The Influence of Arístides Rojas: The catechistic procedure attracted one of the most eminent Venezuelan writers of the past century, Arístides Rojas, perhaps as the result of the powerful position held by the commercial interests of the bookselling and publishing firm of "Rojas Hermanos" -- to which he belonged. Thus two little books were published by Don Arístides for the teaching of geography, both prepared after the method of Smith and Codazzi. These were Primer libro de geografía de Venezuela, segun Codazzi and Primer libro de geografía de Smith o sea geografía elemental dispuesta para niños, both published in 1870. Several editions of both books were issued; the last-mentioned was in its 14th edition in 1911 and the other in its 5th edition in 1897. The latter was the only geography text in federal schools and the former was "the general text accepted throughout the country", according to Guillermo Tell Villegas (Informe -- catalago de los libros de Instrucción Popular publicados en Venezuela por la iniciative privada. Caracas, 1889).

Don Arístides' books, within the limits set by the method of questions and brief answers, are written with precision and clarity, thanks to the broad culture and good style of the author. With his intellectual and political prestige, Arístides Rojas could have oriented the teaching of geography in a rational direction instead of contributing to its stagnation through the continuation of the memorization method in the schools. Nor were the illustrations any help. The first edition of Geografía de Venezuela includes engravings, taken from various publications, which for the most part illustrate nothing, distracting from rather than enlivening the text. In some cases, the caption to the pictures go so far as to describe national scenes with which the pictures have no connection.

A Static Condition While European Geography Develops: The static condition described above -- which was also common elsewhere in the Latin American countries, in spite of the isolated efforts of a few scientists and teachers -- is evident in Venezuelan school legislation which, though abundant, achieved little in the way of innovation. At the same time, geography disappeared completely from the University. The course in general geography (Geografía Universal) which had reappeared in the curriculum in 1883, and even chronology, which had sheltered geography in the service of history since the Colombian Law of 1826, were withdrawn. Unfortunately, a subject that lacked the cultural and scientific life breath of professional and university investigation could not hope to be modernized at primary and secondary levels.

The suppression of university courses in geography occurred precisely when the study was being generalized and modernized in all the European

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universities and was abandoning its literary phase to become a scientific discipline, thanks to the precise observations of Humboldt and Ritter (1810-1860). The work of these two masters had been systematized throughout three quarters of a century and was being interpreted, applied, and amplified by scholars such as F. Richthofen, and Oscar Peschel in Germany and Vivien de San Martín, Elisée Reclus (- idealistic writer and geographer-) and Paul Vidal de la Blache (-master of modern French geography) in France. The influence of these men was strong during the second half of the past century and was felt even into the present century.

In Venezuela while this geographical need continued Alfredo Jahn traveled throughout the country on engineering and geographical missions, published articles[4], and prepared a Geografía de Venezuela. This work was never completed because of the death of its author in 1940; and the country carried along without a national geography other than the 100-year old one by Codazzi.

It is then not strange that during this long period when geography was lacking in the university panorama, though continuing in the primary and secondary schools, a Metodología published for the schools of the country, by two Venezuelan authors, Blanco and Castro, did not include geography as a subject for methodization (Blanco, Mariano y Castro, Julio. Metodos de Enseñaza, Nueva York, 1877). This, in spite of the fact that the latter author, as we have seen, published a new edition of Geografía de Smith.

It is surprising to see how certain books endure in the school market of the Hispanic American countries in spite of the anachronisms resulting from the old text being changed only by some statistical or boundary revisions. The long life of these works can only be explained by the commercial tenacity of certain authors or publishing houses and the failure of teachers and professors to realize that certain disciplines, among them geography are subject to constant growth.

The lack of good wall maps, especially of Venezuela, was one of the factors which had much influence on the failure to modernize geographical teaching. When the teacher or the professor wished to demonstrate his lecture visually by locating towns, physical features, boundaries, routes, and so on, he had to rely on maps from the Codazzi atlas, adequate for individual examination or for office use, but not for schools with large classes of students. (The maps of Francisco P. Acosta, Miguel Tejera, and Bonifacio Coronado were of this type. These maps, though undated, must be of the last third of the nineteenth century.)

A series of wall maps of parts of the world and the world as a whole was introduced in the country in 1905 by official order. Without any characteristics adequate for teaching, with their size (60 by 75 cm), they appeared more like pictures for the purpose of putting a spot of color on the bare walls of the classrooms rather than school maps.

Meanwhile in the passage from one century to another geography in Europe and also in the United States, enlivened by a precise cartography, by the progress of related sciences, such as geology, meteorology, biogeography, statistics, etc., had consolidated its scientific methods of work and study to carry them to

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4. See Jahn, Alfredo. La Evolución de la Geografía de Venezuela, Caracas, 1928.

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the lecture room, and to the textbooks. Already scientific geography was reaching the general public.

Reclus' influence was still strong, for example, in France and the Latin countries, when Paul Vidal de la Blache published his famous Tableau Géographique de la France. At this time there was being molded a group of young geographers who were to form the French geographical school, capable of producing between two world wars the Géographie Universelle with its 23 monumental volumes of regional geography. At the same time in Germany, Friederich Ratzel projected his "anthropogeography" and an entire group of geographers arose, among whom can be noted W. Sievers and Siegfried Passarge. These men traveled through Venezuela and wrote about its geography. Sievers published a book entitled Venezuela (Hamburg 1888) and Passarge a study of Venezuelan Guayana (1901), works whose translation would be beneficial to geographical studies of the country.

All countries with western university culture had their publications, their societies, and their periodicals of geographical revival which reflected in the modernization of geography in teaching texts and in the school. In Spain, where geography had not made good progress, there was a collection of modern school texts published in Barcelona since 1910 which stirred the spirit of investigation, reasoning, and constructivity in the child. What is not so well known is that the editor of that collection was a Venezuelan, Juan Palau Vera, founder of one of the new schools in Europe, the Colegio Mont d'Or, in 1907, in the Catalan capital. Three geographies were published in this collection: a beginners' text, Geografía física y astronómica, by Pablo Vila -- and two others, on Geografía Universal and Geografía de España, indebted to the experience and the writing ability of Palau Vera. None of these multiple influences which were changing the concept of the early descriptive geography into a science of investigation and discovery succeeded in introducing any change whatsoever in the traditional geography of the Hispanic American schools and colleges.

Beginning of a New Era in Venezuelan Geographical Teaching: In 1925 the first revival reaction appeared in Venezuela. A normal school graduate educated in Chile, the then Capt. Juan Jones Parra, whom military training had not separated from his early vocation, published his Notaciones pedagogicos; metodologías de la historia, la geografía y la educación física (Caracas, 1925). In it, the author noted the present state of geographical study.

"While in the past century teaching methods had progressed a great deal, the texts had remained at a standstill." With respect to the primary school he pointed out some principles as directives: "We shall not begin by teaching a child of 8 to 10 years the abstract definition of the sea, of the river -- to the end that the student will form a clear concept when he commences to learn things not by example but by observations;" it is necessary that the children "have the mind sufficiently broadened so that when they see a little stream they understand that it must have a valley... .."; "it is appropriate that the memory be a depository....from which the child can withdraw ideas and events according to his needs." Jones Parra advocated an objectivity in geographical teaching through the initiation of reason and intelligent use of the memory which synthesizes its two-fold objective which teaching should achieve: "learn and understand."

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Though the geographical methodology advised by Jones Parra was purely descriptive, nevertheless his inclination toward objectivity and observation together with his proposal for a logical systematization in the study plan represented a modification of the old outmoded and deficient school concept of geography.

In 1929 the same author published a Geografía de Venezuela. It is an original book which breaks with the Codazzian geographical tradition. "The study", as noted in the preface, "is a coordination of what had been separately treated under the headings of physical, political, and economic geography of Venezuela." It is accompanied by a bibliography of more than 80 titles. In the sections on individual states, data and original descriptions are abundant but rarely in a rationalized form. At the same time, Jones Parra published an elementary book on the geography of Venezuela (a resume of the previous work, in which he recommended the drawing of maps) and also Nociones de geografía física. Scientific orientation enlivens this last publication in spite of the fact that it still contains descriptive pages. These texts have continued to be issued up to the present time.

The first map on a scale appropriate for wall display, Mapa físico y político de los Estados Unidos de Venezuela, scale 1:1,000,000,was officially published in 1928. It represented great progress from the scholastic point of view, though the representation of relief is very generalized and the nomenclature impractical because of the small size of the lettering. In the same year, there was introduced the Atlas geográfico escolar de Venezuela, printed in Spain for the Colegio de San Ignacio of Caracas. This work was a planimetric representation without relief and the form of the country was distorted because of the projection employed.

From then on there appeared texts by new authors with teaching orientations distinct from those of the past century. The catechistic method was abandoned and resort was had to a descriptive or enumerative method, though the short, concentrated paragraphs frequently remind one of the "answers" in the books of long ago. The content was rejuvenated with respect to physical human, and economic geography -- vaguely called "general geography" -- and regional geography -- still called "universal geography." The originality of content was improved by the fact that each author had to assemble his own documentation from official and private publications, through consultation of maps, statistics, and other materials, with a result that each of them added his own observations.

Need for further improvement: However, one must confess that the majority of texts used today have not made sufficient use of the abundance of geologic, botanical, ethnographic, demographic, economic, regional studies, and so on, which are available, nor have they made good use of the maps and cartograms in these studies. This situation explains why vague and even inexact concepts are found in these texts and above all why the exposition does not achieve vitality and interest. This is particularly true where the states are presented one after another without bringing out the similarities and the differences between them.

One observes in the modern authors a pedagogic preoccupation with the plan and arrangement of contents and with the illustration by maps, cartograms, and engravings.

Further, in some texts geography is still introduced by definitions of its component parts. In others, the subject matter is treated in a way that gives

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no indication of the interrelationships among the various physical phenomena, or between the physical environment and human activities.

Recent Official Stimuli to Geographical Instruction: In 1933 the Ministry of Public Instruction introduced an atlas of Venezuela prepared in one of the world's best-known cartographic establishments, the Instituto Geográfico de Agostini in Novara, Italy -- (Giovanni: Atlas elemental de geografía de Venezuela, 1933. Pequeno atlas de Venezuela). This atlas made clear the advantages of geographical material printed with adequate typography and illustrated with good diagrams and colored maps. In 1937, the Ministry of National Education published another elementary atlas, this one including the world as well as Venezuela, prepared by the house of Seix and Barral of Barcelona, Spain, under the direction of Pablo Vila (Atlas Elemental: Mapas físicos y políticos -- con datas estadísticos de gran utilidad). With these official stimuli, authors and editors are eager to improve the content and appearance of their books.

PRESENT-DAY GEOGRAPHY IN THE SCHOOLS[5]

In most countries there is a directive organ, a national council on education entrusted with the responsibility of preparing and putting into practice an educational plan of broad scope. One cannot conceive of the armed forces of a nation without a General Staff to direct and coordinate them. Similarly it is impossible for national education to progress if it lacks, as in the case of Venezuela, a permanent and responsible technical organization whose charge is to direct and coordinate all educational problems. Without such a body the Minister of the Division becomes the only arbitrator charged with naming, removing or dismissing the national teaching staff.

The teaching of geography is still in the formative period in Venezuela, primarily because of the lack of a clear and precise teaching orientation. The consequence of this is a lack of maps designed purely for school use and of other indispensable geographical materials of good national texts, and of sufficient specialized teachers. In noting the lack of adequate texts it is proper to point out that the blame is due in large part to the official program with respect to this material, carried out in a capricious way which reveals, doubtless, the lack of participation by specialists.

The geography of Venezuela as well as general geography (geografía universal) are studied in the primary schools, in normal schools, and in institutions of secondary education. There are courses of specialization in the Instituto Pedagógico Nacional and in the Faculties of Economics, and Philosophy and Letters, in the Universidad Central of Caracas. The National Education Law directs that the completion of six years or grades of primary education be required for all students. In this period, the geography of Venezuela is one of the fundamental courses.

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5. Prepared by Colonel Juan Jones Parra.

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The official program decrees that in the first two years the children receive simultaneously a general idea of the history and geography of Venezuela and of civic and moral education. All this bears the collective designation Social Education, which embraces the study of the home, clothing, nutrition, work, rest, recreation, health, fitness, liberty, and culture. In the third year the teaching of the geography of Venezuela continues in conjunction only with civic and moral education, treating the same themes of the first two years with greater breadth.

After the third year, the geography of Venezuela becomes a separate course and aims to encourage the students to develop an attitude of understanding and to mold themselves, according to the recommendation of the programs, to the conditions of the life of the region they inhabit. It explains to them the characteristic activities and the special influence which the interchange of natural products exerts on the collective life. In this way an attempt is made to stimulate interest in the national public life. To give a closer understanding it seems desirable to outline in some detail the various topical materials used in the various grades and the stages by which the pupils' understanding is developed.

Geography in the 4th Grade: The teaching of the geography of Venezuela commences in the 4th grade with a study of the location of Venezuela on the earth and on the American continent, its limits and its extension. Immediately it passes to an examination of broad natural regions. External and interior-basin drainage is discussed, and specific regions are described. For example, the children learn that Lake Maracaibo has a permanent water communication with the Caribbean Sea by means of various channels through the coastal islands, that a shifting sandbar hinders the free passage of ships of great tonnage through the main channel.

They are taught that the climate is controlled primarily by the height above sea level, varying from the very warm regions of the coast and the llanos to the Andean peaks with their permanent snow, and that very different climatic regions may be closely associated. Traveling from the hot seaport of La Guaira for instance, one arrives by automobile in slightly more than an hour at Caracas, capital of the Republic with an elevation of 820 meters at the foot of the Cathedral and a mean annual temperature of 21° C.

The children discover that the regimen of the rains throughout the country is highly variable; regions exist where rains occur regularly in two different seasons of the year, others, such as some islands in the Caribbean Sea have desert conditions, and still others, such as the delta of the Orinoco, are almost continually without rain. They learn, also, that on Venezuela's great plains, in its immense forests where civilized man has not yet penetrated in many places and in its elevated and extensive mountains, there are animals of many kinds and a great variety of plants of medicinal and commercial value and woods of the finest quality, such as cedro, and caoba; that in its seas, lakes, and rivers, fish of all kinds abound.

The students then take up the problems of communications. They learn of the national project to intensify the part played by the railroads and to extend the highway system, both of which are indispensable to the greater interchange of products within the republic; of the development of air transport and of postal, radio and telephone communications; and of the national and foreign steamship companies which carry cargo and passengers to and from the principal coastal and inland ports.

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During the school course it is necessary to see that the children realize the incalculable wealth of the subsoil and that it must be used first of all for the benefit of Venezuelans. For example, petroleum, the major export, is produced at the rate of approximately 500,000,000 barrels a year, and it appears that the exploitation of iron will be more than 10,000 tons monthly in its initial phase. This places Venezuela in a privileged position for its great contribution to the defense of America. Also in various parts of the Venezuelan Guayana rich gold and diamond deposits are being exploited. In this immense, largely unexplored, region with an area of more than 450,000 square kilometers, the mineral potentialities are still largely unknown. In Aroa, state of Yaracuy, a copper mine has been worked for many years, and in many parts of the territory there are coal mines. Deposits of marine salts of much importance for the fisheries are found along the coast.

The child learns that the wealth of the soil, as yet, in no way compares with that of the subsoil; that agriculture has decreased since the large-scale exploitation of petroleum; and that there is a lack of manpower to say nothing of training to promote agriculture at the same pace. He discovers that coffee and cacao are now exported only in limited quantity. In recent years, however, the cultivation of rice and sugar cane has been intensified. Maize and bananas are produced in most parts of the country; and in the higher regions, exceeding 3000 meters, wheat and other cereals are grown. In the lowlands are many plantations of cotton, sisal, cocuiza, and other fiber plants used in the manufacture of cloth and sacks. It is necessary to teach the children also that a large part of the territory is suitable for livestock, but that cattle-raising does not have a role proportionate to its potentialities. With Venezuela's centralized position in the northern part of South America and the facility of its ocean communications, the country could compete advantageously with other countries producing meat, cheese, butter, and hides.

The children must learn that industries constitute one of the principal sources of the wealth of a country and that without them it will always be dependent on foreign manufacturing areas. They learn that in Venezuela, the most important industries stem from exploitation of the subsoil. Each large petroleum company is required by law to maintain a refinery for the production of gasoline and other petroleum derivatives (Caripito, Guraguao and El Chaure in the east and Amuay, Cardon, and Laguenillas in the west). There are large factories in the eastern, central and western parts of the republic that produce cement of good quality which greatly facilitates the present economic development of Venezuela.

The children learn that industries based on livestock are a vital necessity, and that production of milk may be increased as well as of cheeses, butter, and powdered milk, basic products for the proper nourishment of the people. Tanneries which produce a small part of the skins used for zapatas, bags and harnesses exist in many states.

With respect to other industries, the children learn that those based on agriculture are taking on greater momentum. The sugar industry in particular is expanding and will soon take care of internal consumption requirements. Mills are producing more textiles. Such varied items as hats, sacks, cigarettes, and cigars are manufactured. There are breweries in

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the eastern, central, and western parts; rum is produced in large quantity throughout most of the states. The use of forest products is evidenced by the numerous furniture factories, the saw mills, the production of latex and the gathering of tonka bean. Fisheries also were developed in the eastern part of the republic in order to feed military and naval garrisons during the last world war, and canneries are in operation at the present time. Then there are the pearl fisheries of Isla Margarita, in operation since colonial times.

In political geography the child is taught that Venezuela is a Federal Republic consisting of 20 States, 1 Federal District, 2 Federal Territories, and several Federal Dependencies. Its population barely exceeds 5,000,000 inhabitants most of them are whites, but there are also a considerable number descended from Negros and Indians. Some Indian tribes are completely uncivilized. The cities are not large, except for Caracas, the seat of the federal government and the focal point of national culture. The Venezuelans are almost entirely Catholic, but freedom of worship is a constitutional right and each person may freely practice his religion.

Geography in the 5th Grade: The study of general geography, beginning with the Americas, is introduced in the fifth grade. Topics discussed in the fourth grade are considered in relation to each of the states and colonies. The students learn about their people, language, religion and standard of living; the distribution of population, the most important cities and the form of government; and study the bases of Pan-Americanism.

Geography in the 6th Grade: In the sixth grade the students receive a general understanding of Europe, Asia, Africa and Oceania, in the same order and form in which they studied the Americas, but without so much detail.

Normal Schools and Secondary Education: The teachers of primary schools are trained in normal schools. These institutions, of which there are thirty, are both official and private in character. The program of the geography of Venezuela which they develop is more or less the same as that specified for the schools of secondary education. The teaching aims at a somewhat more intensive and detailed knowledge of certain regions. In a general fashion the students amplify and enlarge their understanding of the subject matter previously studied.

While the students of general geography (Geografía Universal) have a two-year course in institutions of secondary education, in the normal schools they have only one year's course of lectures, which is equivalent to that outlined for the first of the baccalaureate years, as follows: general ideas concerning the solar system, the form and character of the earth, its representation on maps and globes and longitude and latitude. Then follows the lithosphere, hydrosphere, atmosphere, phytogeography and zoogeography. The course is continued with the study of races, religions, distribution of population, birth and death rates and migrations. They then turn to the different types of cultivation, both intensive and extensive; to grazing, fishing and hunting; agriculture and silk culture. The exploitation of the subsoil, the industrial uses of minerals and the development of energy resources is also examined. The course ends with a brief study of the evolution and world importance of the communication systems.

In the second year, the Americas, Europe, Asia, Africa and Oceania are studied in more detail than in the fifth and sixth years of primary school.

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Instituto Pedagógico Nacional: The Instituto Pedagógico trains teachers for the normal schools and colleges and lyceums of secondary education. At present, three years are required for graduation, but after the coming school year, which begins in September, 1951, a four-year course will be initiated. The institute unfortunately neglects a fundamental in the molding of good teachers -- constant attention to exposition, presentation and coordination, requisites indispensable to the true educator. It is useless for the students to have three, four or more years of lectures if these essentials have been disregarded. On graduating they receive the degree of Profesor de Educación Primaria or Profesor de Educación Normal. The Institute's course in history and geography includes general geography, cosmography and interpretation of maps, geology, contemporary history, the history of the Americas, the history of Venezuela, the geography of the Americas and the geography of Venezuela.

Instituto de Antropología y Geografía: The Instituto de Antropología y Geografía of the Universidad Central de Venezuela, was created in September 1949, to direct studies in the history section of the Facultad de Filosofía y Letras. The Institute has completed and published the following projects: Las Turas, by Miguel Acosta Saignes, its present Director; Tlacaxipenatiztli, by the same author; and Zaraza, Biografía de un Pueblo, by J. A. de Armas Chitty. These three works initiated the Series de Folklore, Etnología e Historia. At the present time, studies for the Series de Geografía y de Arqueología are in preparation.

The Institute has already completed some field investigations of an archaeological and geographical nature, the results of which are being prepared for publication. In collaboration with the Instituto de Filología, of the same Faculty, the first number of the journal Archivos de Folklore will be published during 1951. An anthropological museum, a geographical laboratory with various mineral and plant collections and a meteorological station have been established. The weather station has been operating for several months and will publish its results annually.

The principal objectives of the four-year course in the Faculty are to train specialists in the branches of philosophy, history, literature and philology and to contribute to the diffusion of Venezuelan culture. It has three sections. In the history section, which includes geography, the following subjects are taught: general anthropology, physical and human geography of the Americas, human geography of Venezuela, prehistoric cultures of the Americas, history of the discovery of the Americas, colonial history of the Americas, colonial history of Venezuela, history of the independence of the Americas, history of Venezuelan independence, contemporary history of Europe, contemporary history of the Americas, history of Venezuela during the Republic (since 1830), Venezuelan economics, Venezuelan ethnology and sociology and methodology and practice of teaching.

Recent Investigations By Foreigners:

In recent years foreigners have published far less on the geography of Venezuela than on the allied science, geology. Nor can geographers be said to have produced the major part of these contributions. A few of the studies have been published in Spanish in Venezuelan government or private

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bulletins, but by far the majority have appeared as articles in foreign scientific journals. The majority of the authors of the past twenty years listed in the American Geographical Society's Research Catalog are American, with a scattering of British, Dutch, French, German, Latin American, and Russian.

United States missions have prepared reports on fisheries, agriculture and soils under cooperative agreements to alleviate war-caused food shortages and provide measures for long-term agricultural improvement. These have been issued by the Institute of Inter-American Affairs, Food Supply Division, Washington, D. C., the Fish and Wildlife Service of the U. S. Dept. of the Interior, and the U. S. Soil Conservation Service. The Food and Agriculture Organization of the United Nations has also published the results of an Oilseed Mission.

Some idea of the topical interest is reflected in the number of authors listed below under the various subject headings. The list is by no means complete and should be considered as preliminary.

Agriculture and Husbandry
Camp, John R; Crist, Raymond E.; Hansen, Earl; Kovalevsky, G.; Langham, D. G.; Peterson, Lyall; Powers, W. H.; Rudolph, William E.; Vellard, J.; Wylie, Kathryn H.; Ussery, Huling E.; also United Nations, and U. S. Tariff Commission.

Archaeology and Ethnology
Bennett, W. C.; Howard, George D.; Kidder, Alfred, Jr.; Osgood, Cornelius; Nomland, Gladys Ayer; Simpson, George Gaylord.

Geology and Geomorphology
Arnold, Ralph; Burchard, Ernest F.; Berry, Edward, W. (deceased); Bucher, Walter; Corfield, George S.; Funkhauser, H.J.; Davey, John C.; Halse, O. W.; Hedberg, Hollis D.; Hess, H. H.; Hopkins, Edwin B.; Kohrer, L.; Macready, George A.; Manger, G. E.; Maxwell, J.C.; Miller, Alfred; Miller, Eugene, W.; Newhouse, W.H.; Openheimer, Victor; Parkinson, John; Rutten, L.; Sass, L. C.; Suter, H.H.; Sutton, F.A.; Wasson, H. J.; Wiedenmeyer, C.; Liddle, Ralph A.

Economic Geography
Hoffman, H. Theodore.

Fisheries
Fiedler, Reginald H.; Galtsoff, Paul S.; Lobell, Milton J.; Lucas, Clarence R.

Land Use
Crist, Raymond E.; Platt, Robert S.

Meteorology
Fletcher, Robert D.; Semmelhack, W.

Natural Vegetation
Beard, J. S.; Chase, Agnes; Maguire Bassett; Steyermark, Julian A.; Tate, George H.H.; Williams, Llewelyn.

Political Geography
Crist, Raymond E.; Griffin, Charles C.

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Population
Vogt, William; U. S. Bureau of the Census.

Soils
Bennett, H. H.; Candle, J. E.; Hubbell, D. S.; Hull, W. X.; Vogt, William.

CARTOGRAPHY

Early Maps:

The first known map of the country was produced by Juan de la Cosa, a cosmographer who came to the country together with Amerigo Vespucci soon after the discovery of the Venezuelan coast by Columbus in 1498. In 1530, Diego de Ribero prepared a map of America including all the known areas of that time. Further maps were made by the cartographers Joan Martines in 1580, Juan de la Cruz Cano y Olmedilla between 1750 and 1780, Juan López in the latter part of the 18th century, and Juan Oliva at the end of the eighteenth century, as well as by the hydrographer, Joaquín Francisco Fidalgo, who surveyed the coast during the latter part of the eighteenth and the beginning of the nineteenth centuries. The first instrumental surveys were not executed until the arrival of Don José Solano who, with Don José Iturriagas and others came on the Expedition of 1754 to 1761, appointed to define the boundaries between the Spanish and Portuguese colonies.[6]

Travels of Von Humboldt and Schomburgk:

In 1799, Alexander Von Humboldt and his companion, the French botanist Bonpland, landed at Cumana, and made their famous journey through various parts of the territory now occupied by Venezuela, and prepared pace and river traverses controlled by a considerable number of astronomically determined points and accompanied by numerous barometrical determinations of altitude.

During 1838 and 1839, Robert Schomburgk undertook a journey to verify Von Humboldt's positions in the present Territorio Amazonas. His travels took him across the divide of the Uraricoera River of Northern Brazil and into the drainage system of the Upper Orinoco River.

Codazzi's Atlas:

Such cartographic endeavors as these were available to Captain Agustín Codazzi, when, upon suggestion of the President, General J. A. Páez, the Congress appointed him on the 14th of October, 1830, to compile an atlas of Venezuela. This project was carried on for eight years and the final

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6. For sample reproductions of maps by a number of these cartographers and those of later date, see Cartografía Historica de Venezuela 1635-1946. Selección los principales mapas publicadas hasta la Fecha. Caracas, agosto de 1946.

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result was lithographed by Thierry Freres, Paris, France, in 1840. Codazzi's own contribution to these maps consisted chiefly of route surveys. He made no astronomical observations and few determinations of altitude, depending for these on his predecessors, but introduced corrections based on his traverses. The resulting maps were poor with regard to absolute position and altitudes.

R. R. Platt has commented that "the Codazzi map was long accepted as the 'mother map' on which all subsequent maps of Venezuela were based and is an excellent example of the effect that a well-executed map, produced under the authorship of a cartographer of good reputation, can have on the cartography of a region or even of a country over a long period of time. The errors in position and even those in elevation were repeated in large part as late as 1888 and by so reputable an authority as Wilhelm Sievers. In fact, no general correction of the errors of the Codazzi map was accomplished until in 1905 the astronomical commission of the official Plano Militar established by precise methods the astronomical and trigonometrical base for a map of the whole republic."[7]

The Plano Militar:

By presidential decree on the 27th of June, 1904, this new astronomical commission initiated the cartographic work of the present century. The decree ordered the compilation of a "Military Map" of the Republic. A "Junta Central" (Central Committee), was formed and appointed to control the surveys. This committee was comprised of the distingueshed Venezuelan engineers, Doctors: Jesús Muñoz Teber, Manuel Felipe Herrera Tovar, Luis Ugusto, Felipe Aguerrevere and Ricardo Razetti. The projected atlas was to comprise one general map, scale 1:1,000,000; sixty sectional maps, scale 1:250,000; and military maps, scale 1:50,000. The project was revised by presidential decree on the 1st of June 1909. The revision called only for the production of a Physical and Political map of Venezuela, scale 1:1,000,000. Dr. Felipe Aguerrevere was appointed chairman of the new committee with Doctors Santiago Aguerrevere, Francisco J. Duarte, Siro Vazquez, and others as members. The commonly used map, up to a few years ago, was a general map, Mapa Físico y Político de los Estados Unidos de Venezuela, scale 1:1,000,000, compiled from data secured by the committee, printed in 1928 and re-printed in 1937. This map showed relief by brown shading with spot heights, major political divisions overprinted with different flat colors, minor political divisions, etc.

Development of Cartografía Nacional:

A presidential decree of July 24, 1935, created the Aerophotographic Service, which has developed into the present active cartographic institute, the Cartografía Nacional. Its first Director was Dr. Eduardo Tumayo, an enthusiastic and energetic promoter of the new project. The precise photogrammetric equipment used at the present time was acquired through his initiative. He was succeeded in 1941 by Dr. Eduardo Calcano, the present incumbent. Under his able direction the institute has progressed rapidly in all its sections.

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7. A Catalogue of Maps of Hispanic America. Vol. III: Maps of Venezuela, The Guianas, Brazil, and Paraguay. Map of Hispanic America Publication No. 3 American Geographical Society. New York. 1933.

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The program now in effect at Cartografía was initiated in 1939. Its general objective was the production of maps in scales of 1:2,000,000 and 1:1,000,000; sectional maps in scales of 1:250,000, 1:100,000, and 1:25,000, and maps of the principal cities and their surroundings on the scale of 1:10,000. Within this program the presently executed geodetic work was initiated in 1943 by virtue of recommendations tendered by the chief of the division, Dr. Luis Felipe Vegas, because a great number of the formerly established triangulation stations were either nonrecoverable or did not meet first order specifications.

The government of the United States has helped in diversified collaborative efforts with the institute; Venezuelan technicians have been, and are being, trained by the U. S. Coast and Geodetic Survey. Coast and hydrographic surveys accomplished by vessels of the U. S. Navy, the USSS "Hannibal", "Summer" and "Tanner", continue to be of great help in the compilation of data. The Corps of Engineers, U. S. Army, through its Inter-American Geodetic Survey, represented first by Lt. Col. Knute Hansston, CE, then by Major Fred W. Karsten, CE, the present incumbent, has furnished equipment and technicians whenever required. It is providing valuable support by furnishing the use ofa number of vehicles for field use as well as geodetic instruments. The services of two technicians have been made available. The Survey is also aiding in the planning of the projected South American Datum which will be initiated in the very near future.

Other Cartographic Projects:

Venezuela's international boundaries with Colombia and British Guiana have now been largely surveyed and demarcated by joint boundary commissions. Demarcation of the southern boundary with Brazil, commenced many years ago in the region of Brazo Casiquiare and continued more recently in the savannah country to the west of Mt. Roraima, is being carried on at the present time by ground and aerial methods.

Particular mention must also be made of the contributions of Dr. Alfredo Jahn, a Venezuelan of German parentage, whose work, commenced in 1875, continued into the 1920's; and more recently of the private cartographic efforts of Doctor Eduardo Röhl, the author of a map of the state of Miranda, a plan of Caracas and its surroundings, and several astronomic and geodetic works.

No brief statement of the mapping of Venezuela would be complete without mention of the important contribution of American and European petroleum companies with concessions from the Venezuelan government for the exploration and development of petroleum resources. Their surveys range from route traverses to detailed contour maps, controlled by carefully determined astronomic and geodetic positions. Copies of these maps, covering broad areas of the nation, must be deposited by law with the government.

With the close cooperation of the Cartografía Nacional and the various private petroleum and mining companies, The American Geographical Society has been able to incorporate the majority of this information into sheets of its Map of Hispanic America, 1:1,000,000. The first of these, Barranquilla (North C-18) which includes a relatively small section in the Lake Maracaibo region, was issued in 1934, and the final one Caracas (North C-19), in 1945. At the time of writing Barranquilla and Roraima (North B-20) are in process of reproduction from completely revised compilations.

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Cartographers in Government Institutions:

Ministerio de Obras Públicas: Cartografía Nacional

Dr. José ABDALA G. Cartografía Nacional, División de Geodesia. Civil engineer. Chief Engineer, Sección Astronómica.

Dr. Héctor ARCIA. 2ª Avda. Mirador, La Campiña, Caracas. Doctor in Physical and Mathematical Sciences. Chief of División de Restitución.

Dr. Roberto ARREAZA. Avda. Los Mangos. Villa Reina, Las Delicias, Sna. Grande. Aragua de Barcelona, July 22, 1921. Civil Engineer. Computer.

Dr. Eduardo CALCAÑO A. Negrín 26, El Recreo, Caracas. Caracas, January 26, 1902. Director of Cartografía Nacional.

Dr. Luis CALCAÑO. Avda. Cajigal, San Bernardino, Caracas. Caracas, 1907. Doctor in Physical and Mathematical Sciences. Chief of División de cartas aeronáuticas.

Félix CARDONA PUIG. Quinta San Jordi, 16 Boleita 2ª Avda. Transversal, Dos Caminos. Malgrat (Barcelona) Spain, February 6, 1903. Capitán de Marina Altura. In charge, barometric elevations; assistant astronomer. Formerly with Ministerio de Relaciones Exteriores (frontier exploration), Ministerio de Agricultura y Cría (Dirección Forestal), Ministerio de Fomento (Geología). Since 1926 preparing hydrographic surveys throughout the greater part of Venezuelan Guayana and frontier exploration along Brazilian and Colombian boundaries.

Carlos J. del CASTILLO. San Bernardino, Avda. La Estrella, Quinta Elba, Caracas, Venezuela. Yaritagua, November 4, 1904. Diploma in Geodetic Computations, awarded by U. S. Coast and Geodetic Survey. Chief of Sección de Cálculo Geodésico. In División of Geodesie for 14 years, topographic and geodetic computation.

Juan Bautista DOMINGUEZ. Santa Rosa a Santa Isabel, 84, Caracas. Sabana Uchire, Anzoátegui, May 16, 1914. Chief, División Cartografía Nacional. 15 years with Cartografía Nacional.

Ministerio de Educación Nacional.

Dr. Eduardo RÖHL. Caracas Country Club, Caracas. Dr. H. C., Universidad Central, Caracas and University of Puerto Rico. Director, Observatorio Cajigal. Various maps and publications on astronomy and geodesy.

Ministerio de la Defensa, Fuerzas Navales.

Cap. de Corbeta Daniel GOMEZ CALCAÑO. Escuela Naval, Maiquetía. Maracaibo, May 14, 1917. Graduate of Escuela Naval Venezolana; Diploma in Hydrography awarded by U. S. Coast and Geodetic Survey. Director of the Naval School. Formerly Venezuelan delegate for Venezuelan coastal surveys; aerophotographic observer;

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professor of hydrography at the Naval School; chief, Servicio Hidrográfico de Venezuela. Surveys of the Venezuelan coast, the Orinoco River, and instructional studies along Atlantic coast of U. S. (Maryland, Maine).

Cap. de Corbeta Marco Tulia MONTERO LEÓN. Av Rotaria, Urbanización "La Paz", Qta. Mi Chinita El Paraíso, Caracas. Maracaibo, May 18, 1912. Diploma from Escuela Superior de Guerra, del Perú. Associated with the Comandancia de las Fuerzas Navales, Oficina Naval de Límes. Hydrographic studies in Lake Maracaibo and the Maracaibo Bar for one and one-half years; Chief of Hydrographic Service of the Navy, one year; investigatory surveys on the Orinoco River, 2 years 3 months; Hydrographic Inspector on U.S.S. "Bushnell", 5 months. Hydrographic Surveys, tidal studies, currents, investigation of changes in channels, islands, sand banks, etc., on the Orinoco River.

Ministerio de Relaciones Exteriores: Dirección de Fronteras.

Dr. Francisco J. DUARTE. Av. los Pinos, El Paraíso, Villa Francis. Maracaibo, Dec. 6, 1883. Civil Engineer. Director of Frontiers, Ministerio de Relaciones Exteriores. Formerly Chief of Demarcation Commissions with Colombia, Brazil, and British Guiana. Astronomical determination of geographical positions.

Ministerio de Obras Públicas: Obras de Riego.

Dr. Santiago AGUERREVERE. 3ª Avda., Los Palos Grandes, Edo. Miranda. Caracas, August 5, 1890. Consulting Geologist with Boundary Commission with Colombia 1933-1936 and 1944.

Dr. Hilario ITRIAGO. Av. Venezuela No. 1, El Rosal. Zaraza, April 1, 1914. Civil Engineer. President of the private company, "Cartografía Mercator". Has been Auxiliary Engineer with Venezuela-Brazil Boundary Commission. Determination of geographical positions; topographical surveys in general.

Armando Ali LAZZARI. Qta. Michele, Campo Alegre. Caracas Mar. 28, 1916. Certificate in geodesy from U.S. Coast and Geodetic Survey. Member of private firm "Cartografía Mercator". Formerly Chief, Comisiones Geodésicas y Astronómicas, Cartografía Nacional.

Cartographers in Private Agencies:

Dr. Luis M. Ed. Gradillas ARDILA. 4° piso no. 41, Caracas. Maturín, June 15, 1911. Engineer. Managing Director, Ardila-Hulett. C. A. "Clayper". Engineer at the service of Cartografía Nacional since its foundation. Venezuelan cartography and Venezuela-Brazil boundary.

Dr. Miguel HERNANDEZ HERNANDEZ. Avda. Oeste 13 No. 24, Apartado 535, Caracas. Caracas, December 20, 1912. Doctor in Physical and Mathematical Sciences. Aero-cartographic Engineer, 14 years in the

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División de Restitución. Member of Comisión de Catastro, D. F.; Corresponding Member of Committee on Urban Surveys, Pan American Institute of Geography and History.

Dr. Miguel de LEMOS. Villa Doris, Avda. Las Palmas, Caracas. Caracas, April 18, 1914. Civil Engineer. Chief of Sección Geodésica. Formerly Chief Engineer of the Boundary Commission with Brazil.

Dr. Roberto MONTEMAYOR. Avda. Principal, Caracas Country Club, Caracas. Caracas, April 10, 1897. Civil Engineer. Engineer in the División de Restitución.

Dr. Oscar OYARZABAL. Cartografía Nacional, Caracas. Maiquetía, Dto. Federal, September 29, 1914. Doctor in Physical and Mathematical Sciences. Chief, Sección de Hidrografía y Topografía. With Cartografía Nacional for 15 years in geodetic, topographic, hydrographic, and tidal studies. Vice-President of Venezuelan Deleg tion to the IV Consultation on Cartography, Buenos Aires, 1948.

Dr. Adolfo C. ROMERO. División de Geodesía, Cartografía Nacional, Caracas. Civil Engineer. Chief, Sección de Gravimetría y Geomagnetismo. Has undertaken astronomical, tidal, gravimetric and geomagnetic studies.

Dr. Luis Felipe VEGAS. Avda. Buenos Aires No. 4 Urb. Los Caobos. Caracas, December 19, 1903. Doctor in Physical and Mathematical Sciences. Chief, División de Geodesía. Chief of Boundary Commissions with Brazil and Colombia (1930-1934). Member of Organizing Committee, IV Assembly Pan American Institute of Geography and History; Venezuelan Delegate to II and III Consultations on Cartography of PAIGH and President of the same at the IV Reunion.

Part-Time Cartographers:

Dr. Miguel A. CALCAÑO. Av. Negrín No. 26, Caracas. Caracas, Jan. 2, 1907. Doctor in Physical and Mathematical Sciences. Professor in Geodesy and Astronomy in Facultad de Ciencias Físicas y Matemáticas, Universidad Central de Venezuela, Caracas. Full-time professor in Escuela de Ingeniería. Formerly Auxiliary Engineer with the Venezuela-Colombia Boundary Commission; Assistant Director of Observatorio Cajigal; Computor in División de Geodesía, Cartografía Nacional.

Dr. Henrique RIVAS ROJAS. Ricaurte a Plaza No. 150, Caracas. Cumaná, Nov. 16, 1909. Civil Engineer. Inspector (Ingeniero Inspector) with I.N.O.S. Formerly with Venezuela-Brazil Boundary Commission. Topography and astronomy.

Dr. Armando VEGAS. Av. Los Manolos, La Florida, Caracas. Caracas, Dec. 19, 1905. Doctor in Physical and Mathematical Sciences. President, Cía. A. Vegas y Rodriguez Ameng. Formerly with Venezuelan Boundary Commissions with Brazil and Colombia.

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Mapping Activities of Government Agencies:

Dirección de Cartografía Nacional; Ministerio de Obras Públicas, Caracas.

Director: Dr. Eduardo Calcaño
Chiefs of Divisions:
Geodesy: Dr. Luis Felipe Vegas
Restitution: Dr. Hector Arci
Aeronautical Maps: Dr. Luis Calcaño
Aerophotography: Sr. Luis Edo. Mathison S.
Geographical Maps: Sr. Juan Bta. Dominguez

Cartografía Nacional was founded in 1935 and since then has been engaged in the mapping of the country. It is the principal map-making agency of the government. With this objective, it initiated the measurement of a triangulation network to serve as a base for its work. In addition, it has acquired aerophotographic and restitution equipment for the topographical operations and has initiated hydrographic, gravimetric, and geomagnetic operations. The technical equipment includes "Lo-var" tapes, with accessories for the precise measurement of geodetic base lines, Alkania and Reyde astronomic equipment, Wild theodolites, Zeiss (focal length 10 and 20 cm) and Fairchild (focal length 6 inches) aerial cameras, complete photographic laboratory, Zeiss stereoplanographs, Zeiss and Bausch and Lomb multiplexes, hydrographic survey equipment, installed tide gauges, and many other items necessary to accomplish this work.

At the present time Cartografía is occupied with extension of the geodetic nets, the determination of the gravity "datum" of South America, the hydrographic survey of the coasts of the north of the country, the continuation of a program of tidal observations, etc.

Cartographic Methods Employed in the Office of the

National Cartography

I. Technique of Work

The larger-scale maps are constructed exclusively from aerial photographs. The standard scales adopted are 1:25,000, 1:100,000, and 1:250,000 for series maps; 1:1,000,000 and 1:2,000,000 for general maps. The area compiled on the 1:25,000 scale covers more than 60,000 square kilometers while the area compiled on the smaller scale, 1:250,000 (largely due to the initiative of Doctor Luis Calcaño), covers 445,000 square kilometers, together this coverage represents 49 percent of the total area of Venezuela. The vertical air photographs for mapping purposes are taken in general on scales varying between 1:20,000 and 1:30,000; for projects of other type (irrigation, roads, etc.) the scales may be greater -- 1:10,000, 1:5,000, etc. A few areas are covered by photographs of a scale smaller than 1:40,000. To date approximately 600,000 square kilometers of the national territory have been photographed.

Work completed has been based on topographical triangulation of third order, tied to the original triangulation of the beginning of

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the century, which can be considered as of second order. As mentioned in the general summary of cartography in Venezuela, the triangulation has been substituted and amplified since 1943 by a new net of first order. This program is in operation at the present time. The progress to the end of September, 1950 may be summarized as follows: first order base lines measured, 10 : projected, 3 ; first order astronomical stations completed, 12; projected, 4; second order astronomical stations completed, 14; projected, 2; determined ground control stations for the compilation of aerophotography, 3,675; first order leveling completed,1,930 kilometers, with 840 concrete bench marks; first order triangulation figures completed, 132; in reconnaissance, 152.

As for the construction of the maps, stereoscopic restitution is employed in precise mapping on scales of 1:25,000 and larger, using multiplex projectors and stereoplanigraphs; and for cartography approximating the scale of 1:100,000 or smaller, the method of radial line extension of control (triangulación radial) with restitution by sketch masters is employed. For this type of work the contour lines are incorporated by approximate restitutions made with a stereocomparagraph based on barometric heights and elaborated if necessary with interpolated contours.

II. Scales and Contents of the Maps

The published maps on the following scales adopted according to the work program in force since 1939 are as follows:

Maps of Cities and their Surroundings, Scale 1:10,000: edition generally in six colors; contour interval 10 meters.
Maps on the scale of 1:25,000: edition in 5 colors; dimensions, 36 by 36 cms.; contour interval 20 meters.
Maps on the scale of 1:100,000: edition generally in 4 colors; dimensions 55 by 72 cms.; contour interval 100 meters.
Maps on the scale of 1:250,000: edition generally in 4 colors; dimensions 88 by 66 cms.; contour interval 250 meters.

Aeronautical Charts

Route charts, scale 1:250,000: edition with hypsometric tints corresponding to the layers: 1-250 meters, 250-500 meters, 500-750 meters, 750-1000 meters, 1000-2000 meters, etc.; number of colors varies with the altitude of the zone represented, starting with a minimum of six; width 30 cms.; length variable depending upon the route.

Aeronautical charts on the scale of 1:1,000,000: area of country covered, 4° to 12° north latitude, 4 sheets with the number of colors variable up to a maximum of 13; standard format 45 by 67 cms., or 6° longitude by 4° latitude.

Aeronautical chart on the scale of 1:2,000,000: includes the entire national territory; edition in 10 colors; format 88 by 67 cms.

These maps and charts are listed in a pamphlet entitled, Publicaciones de la Dirección de Cartografía del Ministerio de Obras Públicas, obtainable from Cartografía Nacional. Requests for maps should be accompanied by check or postal order made out to "Director de Cartografía Nacional."

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Dirección Forestal; Ministerio de Agricultura y Cría, Caracas, Venezuela.

Director: Dr. Manuel A. Gonzalez Vale

A. División de Tierras

Chief of Division
Engineer
Two topographers
Two typists
Two draftsmen
One chauffeur

The División de Tierras was created in July, 1946, under the name of Departamento de Tierras and is composed of two major sections -- Juridical-Administrative, and Topography and Drafting. In July 1948 it was designated as the División de Tierras.

Specific Functions. The study and resolution of activities related to sales, rentals, and free grants of government lands; granting of government lands for the formation or extension of municipal public lands; donation of lands belonging to the nation when the capitals of the municipios are located in properties belonging to the nation; location and planning of government lands with the purpose of contributing to the solution of the problem of the scarcity of arable lands; remeasurement of rural farmsteads of private ownership to verify the superficial excesses illegally retained; the study of agrarian conflicts brought about by doubtful juridical situations; the survey of lands belonging to indigenous communities for settlement of conflicts with which these communities are confronted by incursions made on their lands by owners of adjoining properties; preparation of materials required by the court for reestablishment of rights to economically valuable regions by the nation; preparation of the Census of Venezuelan Rural Property (Censo de Propiedad Rural Venezolana); measurement and preparation of topographical plans of government lands requested as free grants by poor agricultural workers; measurement and preparation of topographical plans of all lands retained illegally but since then restored to the nation, generally when the problem is related to the administration of government lands committed constitutionally to the Federal Executive Power; transfer of properties and improvements situated in the watersheds of cities, towns, or smaller settlements; General Hunting Service (Servicio General de Casa); assistance to the National Commission for theProtection of Wild Life (Comisión Nacional Protectora de la Fauna Silvestre); and the expediting of licenses for hunting and exportation of wild animals.

Projects Completed. For the purpose of precise determination of government lands suitable for agricultural and livestock production and to demonstrate that the alleged scarcity of land is a real problem, the Dirección has located and measured parcels in 131 separate areas, totaling more than 288,000 hectares; has demarcated lands belonging to indigenous communities, 3,794 hectares; prepared topographical plans of important agricultural areas in Zulia; and delimited numerous additional parcels in other parts of the country both for title rectification (over 66,600 hectares in Zulia alone)

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and other special needs.[8]

Survey Method Employed. The method employed in the surveys is that of "direction and distance," making solar observations to fix the north-south line.

The División de Tierras, with the ends in view that inspired its creation, cannot have a fixed andpermanent program for its cartographic work. These projects are almost always fortuitous -- a conflict arising, for example between "latifundistas" and occupants, or between proprietors and petroleum companies, or between indigenous communities and intruders from lands adjacent, etc. In these cases an engineer and a topographer are dispatched to the region of the conflict to make surveys of the perimeters or limits under discussion. The section of Engineering and Drafting (Sección de Ingeniería y Dibujo) of the División de Tierras thus has had in its charge only work complementary to the juridical-administrative functions of the office.

B. Oficina Técnica

Principal members of the Oficina Técnica are H. M. Curran, tropical forest engineer (South America and the Philippines); J. P. Veillon, a Swiss forest engineer; Marshall R. Turner, a Yale master of Forestry, actually teaching at the Forest School of the Universidad de los Andes in Merida, Venezuela and Gerardo Budowski, agricultural engineer from Venezuela.

After preliminary examination, it became clear to the members of this office that Venezuela lacked a basic knowledge of most of her forests and their problems and it was therefore decided as a first step to make a forest inventory and prepare a forest map of the country.

At the beginning of its activities, the members of the technical office made surveys in the state of Portuguesa, principal source of mahogany and spanish cedar, where commercial exploitation was reaching a critical point owing to increasing scarcity of the so called "fine timbers." The results were compiled as an extensive and detailed report, an abstract of which has been published, accompanied by the first forest map of that state.

Then followed similar explorations in the states of Trujillo, Nueva Esparta (Isla de Margarita), Barinas, the middle and lower Caura region of Bolívar, most of the state of Zulia, and the Territorio Delta Amacuro. Forest maps for all of these regions were completed, except for that of Territorio Delta Amacuro, now in the preparatory stage.

As to work procedure, an extensive ground and aerial reconnaissance is made, using all available maps, aerial photographs, and other data. Accurate measurements of representative forests are made in the form of "sample plots" (hectares tipos) and the composition and quality of the forests and grasslands are investigated by collecting botanical specimens and wood samples. Attention is also given to the amount of timber, the

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8. A detailed summary of these projects is on file at the American Geographical Society.

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possibilities of commercial exploitation, and the problems which affect or might affect the region.

In the office, where all data is compiled, the forest map is completed, using, generally, the 1:1,000,000 map of the American Geographical Society enlarged to a scale of 1:250,000 as a base. The new data acquired in the field are adapted to it, especially the information on the aerial photographs supplied by the Cartografía Nacional.

Dirección de Geología; Ministerio de Minas e Hidrocarburos, Caracas, Venezuela

Director: Dr. Armando Schwarck Anglada

Technical Director and Chief, Departamento de Geología General e Hidrología: Geologist Leandro Ziranda Ruiz.
Chief, Departamento de Geología Minera y Petrolera: Geologist Luis Ponte Rodriguez.

In 1936 the Servicio Técnico de Minería y Geología, a branch of the Ministerio de Fomento, was created; in 1949 the service changed its name to the Instituto Nacional de Minería y Geología. In January 1951, by official decree, the Ministerio de Minas o Hidrocarburos was created; for reasons of nomenclature the Dirección de Geología, a dependency of this Ministry, replaced the Instituto.

Nature of Projects in Operation. The studies which the Dirección de Geología undertakes are related primarily to geological and mineral exploration. This bureau carries out detailed geographical studies in small areas when the type of geological exploration so requires them. For geological investigations of broad areas, generalized topographical studies by reconnaissance methods are undertaken. The maps prepared by Cartografía Nacional on scales of 1:25,000, 1:100,000, and 1:250,000 are employed as the geographical bases in areas covered by these sheets. Geological information furnished by petroleum and mining companies is also used.

In most of the cases the Dirección de Geología prepares its own topographical studies. It employs aerial photographs, transit, alidade, or pace and compass surveys for its geological maps, the method depending on the nature of the work. Similarly, mapping scales are varied to meet the requirements. Among the projects the following may be mentioned: exploration of the Gran Sabana, Sierra Imataca, exploration of Cerro Marahuaca, and the Urimán region (Río Caroní).

The bureau has also completed several aerophotographic surveys in the gold-and iron-bearing regions of the state of Bolívar with the collaboration of the Ministries of National Defense and Public Works.

A list of maps, plans, folders, etc. available for public distribution, is on file at the American Geographical Society. These publications, all of which are heleographed, are designated by serial numbers and may be obtained from the Dirección at a cost of Bs. 1.50 each.

Servicio de Meteorología y Comunicaciones, Fuerzas Aereas. Maracay, Venezuela.

Chief, Capitán Francisco R. Marín S.

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Venezuela has in operation 13 meteorological stations and seven climatological stations.[9] With one exception (Santa Elena, state of Bolívar) these are distributed throughout the northern part of the nation, north of latitude 7° north.

The first of these two divisions, that is, the synoptic stations, make daily and hourly reports to the headquarters of the Meteorological Service, where synoptic maps are prepared and the daily 24 hours prediction completed. At the end of each month a resumé of all observations is sent to the Climatology Section (Sección de Climatología), which is charged with the preparation of bi-monthly bulletins. The climatological stations send only monthly resumés, but make the principal and intermediate observations daily.

Since July 1950, there has been in operation in the Service an Office of Weather Forecast (Oficina de Predicción del Tiempo) which is charged with making area predictions, flight forecasts for the Aeronautical Service, and 24 hour forecasts which are published in the principal newspapers of the country and broadcast by radio.

MAPPING ACTIVITIES OF PETROLEUM COMPANIES

Mention is here made of the two largest oil companies operating in Venezuela. All foreign companies are required by law to submit copies of their maps to the Ministerio de Minas e Hidrocarburos, where some recompilation and study of the survey materials is made. The contribution of the petroleum companies to the cartographic knowledge of the country is great; before the establishment of the government's Cartografía Nacional they were the sole source of original surveys covering broad regions of the national territory.

Shell Group Venezuela:

The surveys carried out by the Shell Company can be divided into three groups: (1) Concession surveys, (2) Exploration surveys, (3) Engineering surveys.

The first group comprises all types of surveys in connection with concessions, such as second-order triangulation, polygonometry, tacheometry, plane table and photogrammetry. The second group comprises route survey with compass theodolite, hand compass, odograph, plane table, and sketching (dibujos a simple vista). The last group comprises detailed surveys of the oilfields for large-scale maps, including levelling and construction surveys. For cartographic purposes only groups 1 and 2 are of general interest, since the surveys in connection with concessions are naturally very limited in extent and confined to company holdings. The maps produced under the third category are very reliable and the accuracy is around 1:3,000 for polygons and second and third order for triangulation. Due to the lack of an official first and second order national triangulation in the region of company holdings, surveys are necessarily only local and based on a local plane system. Any relation between the different "locals" is, in a geodetic sense, poor.

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9. A list of these stations, with location and altitude, is on file at the American Geographical Society.

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A considerable number of astronomical observations for position determination have been carried out for the control of the exploration surveys and the construction of small scale maps. These observations were made with T-2 and T-3 instruments and radio, and the points are marked on the ground by iron pipes.

Photogrammetric restitution is confined to the use of the slotted template method (without regard to tilt), and the planimetric maps have all the inaccuracies inherent in this method. Usually this method is applied only for filling in purposes or for exploration maps. The exploration survey is far less accurate than the concession survey, but nevertheless it has an enormous value for the general cartography, insofar as it gives a clear and reliable picture of many remote and otherwise unknown areas.

All survey data furnished by the field surveyors, geologists, or geophysical parties are compiled into maps on scales of from 1:10,000 to 1:250,000 according to the purpose for which the survey was carried out. At present the company is compiling topographical maps on 1:100,000 containing all topographical information available -- both their own and from other sources. The projection system adopted is the Government's "Conico Secante". Mention should also be made of the Shell Company's Mapa de las visas de comunicacion de los Estados Unidos de Venezuela, 1:1,000,000, an excellent general map of northern Venezuela.

The personnel employed -- civil engineers, geodesists, technicians, and in the majority cadastral surveyors -- have been largely recruited from European countries, and after working for the Group from 3 to 20 years, these men usually retire to their home country. Thus, few of them are easy to contact and a full list of names would be of little value. Therefore only four names are mentioned:

1) Kehrer, Dr. L. (Swiss, retired) geologist. Covered with his exploration work most of Venezuela north of Orinoco.

2) Pacheco, Dr. L. (Venezuelan, still with Shell in Caracas). Concession maps and interpretations of State and District boundaries.

3) Pantin, Dr. F. (Venezuelan, still with Shell in Caracas). Concession maps and interpretations of State and District boundaries.

4) Trutmann, Dr. O. (Swiss, retired) chief surveyor; Compilation of the 1:1,000,000 map.

Creole Petroleum Company:

The Creole Company similarly carries on exploratory and detailed surveys within the areas of its concessions, and maintains the largest petroleum production in the country. The following individuals at present in the employ of the Company hold key technical positions in connection with survey operations and map drafting:

Engineering:

1) Goodale, Edward Russell. Senior photogrammetrist, Caracas.

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Twenty-two years training and experience in aerial photography, mosaic and map-making. Responsible for the mapping, from aerial photographs, of approximately 50,000 square kilometers in Venezuela. Responsible for the organizing and compiling of 90,000 square miles of controlled mosaics for use in the "Link Trainer", a machine designed for the U. S. Army Air Forces in its pilot-navigation training programs.

2) McCammon, George A. Chief of General Engineering, Production Department, Caracas. Promotion and organization of triangulation systems for Lake Maracaibo region of Western Venezuela. Meteorology of various regions of Venezuela. Hydrography of Lake Maracaibo and surrounding regions.

3) Mugarra, Bernardino de. Photogrammetrist, Caracas. After coming to Venezuela from Spain in 1939, worked as cartographic draftsman in the Creole Petroleum Corporation for three years. Transferred to the Photogrammetry Subsection, became assistant supervisor in 1949. Participated in the mapping from aerial photographs, of 50,000 square kilometers in Venezuela. Specialized in delineation of geographic and cultural features from aerial photographs.

4) Pugh, David Daniel. Surveying Supervisor I, Maracaibo. Development of survey systems covering unmapped areas of Venezuela including a triangulation system over Lake Maracaibo.

Cartographic Drafting:

1) Mazzei, Andres. Supervisor, Cartographic Drafting Subsection, Caracas. Twenty-five years cartographic drafting in supervisory capacity. Worked 20 years in Maracaibo office of the Lago Petroleum Corporation (Creole) and five years in the Caracas office, Creole Petroleum Corporation. Responsible for training and supervision of cartographic draftsmen. Responsible for compiling and revision of Company base maps and geologic maps from all available field and reference data.

2) Morazzani, Rene Leopoldo. Assistant Supervisor, Cartographic Drafting Subsection, Caracas. Thirteen years experience as cartographic draftsman. Specializes in computing and plotting of projections. Trained in field surveying and computing. Participated in the compilation of the Company base maps and geologic maps of Venezuela.

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BRAZIL[1]

BRAZILIAN GEOGRAPHERS AND THEIR SPECIALTIES

The following list of Brazilian geographers is made up of two groups: 1) those who are, or have been, active in research studies in the field, and who are socios efetivos of the Associação dos Geografos Brasileiros and who answered the questionnaire sent to members during 1950; and 2) other geographers known to the committee.

Sílvio Fróes de ABREU - Director of the Chemistry Division, Instituto Nacional de Tecnologia. Professor of the geography of Brazil, Faculdade Católica de Filosofia. Professor of geography, Instituto de Educação. Member Committee on Publications, Conselho Nacional de Geografia. Physical geography and mineral resources of Brazil. Rua Dr. Satamini, 129, Rio de Janeiro, D. F.

Aziz Nacib AB'SABER. Rua Maria Antónia, 294 (Caixa Postal 105B), São Paulo, S.P. Instructor of physical geography, Faculdade de Filosofia, Institute "Sedes Sapientiae". Technical assistant, Department of Geography, Faculdade de Filosofia, Universidade de São Paulo. Geomorphology of São Paulo state, Triangulo Mineiro, and the Planalto Central.

José Ribeiro ARAUJO FILHO. Caixa Postal 105B, São Paulo, S.P. Assistant in the geography of Brazil, Faculdade de Filosofia, Universidade de São Paulo. Human and regional geography, especially the Paulista littoral.

Aroldo de AZEVEDO. Caixa Postal 105 B, São Paulo, S. P. Professor of the geography of Brazil, Faculdade de Filosofia, Universidade de São Paulo, and chairman of the Department of Geography. Human and regional geography, urban geography of São Paulo.

Everardo BACKHEUSER. Rua Pontes Corrêa, 13, Rio de Janeiro, D. F. Professor emeritus. Political and regional geography, especially Rio de de Janeiro state.

Carlos Miguel Delgado de CARVALHO. Rua Siqueira Campos, 7, Rio de Janeiro, D. F. Professor of contemporary history, Faculdade Nacional de Filoso-

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1. This section of the report was prepared by Dr. Preston E. James, Chairman of the Subcommittee on Brazil. Much of the compilation of the report was done by José Verissimo da Costa Pereira, Assistant Secretary, Instituto Brasileiro de Geografia e Estadística, Rio de Janeiro (President, Associação do Geografos Brasileiros) and Maria Conceição Vicente de Carvalho, Magnólia de Lima, Olga Buarque de Lima, Cecelia Cerqueira Leite Zarur, Maria Lucilla Campista Santos, all from the the Conselho Nacional de Geografia, Rio de Janeiro. the Subcommittee is indebted to many members of the Association of Brazilian Geographers who answered questionnaires concerning their interests, positions, and address.

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fia. Professor of sociology, Instituto de Educação. Chairman Committee on Teaching and Methodology, Commission on Geography, Pan American Institute of Geography and History. Geography of Brazil.

Maria Conceição Vicente de CARVALHO. Rua Barão de Ipanema, 115, apto. 305, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Human and economic geography, especially of the Paulista Littoral.

Christovam Leite de CASTRO. Rua Barão de Jaguaribe, 366, Rio de Janeiro, D. F. Secretary-general, Conselho Nacional de Geografia. President, Commission on Geography, Pan American Institute of Geography and History. Vice-President, International Geographic Union. Cartography and geodesy.

Virgilio CORRÊA FILHO. Praça André Rebouças, 17, Rio de Janeiro, D. F. Chief, Documents section, Conselho Nacional de Geografia. Regional geography, especially west-central Brazil. Geographical dictionary of Brazil.

Alfredo José Porto DOMINGUES. Av. Beira Mar, 436, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Geomorphology and regional geography, especially of the east and northeast of Brazil.

Speridião FAISSOL. Rua Guaiaquil, 120 (Meier), Rio de Janeiro, D. F. Conselho Nacional de Geografia. Regional geography, especially of the north of Brazil.

Ary FRANÇA. Caixa Postal 105 B, São Paulo, S. P. Provisional Professor of Human Geography, Faculdade de Filosofia, Universidade de São Paulo. Human geography, especially the Paulista littoral, and the floodplain of the Middle Paraíba.

Ruy Osório de FREITAS. Rua José do Patrocinio,131 (Aclimação), São Paulo, S. P. Assistant in geology, Faculdade de Filosofia, Universidade de São Paulo. Geomorphology.

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Lindalvo Bezerra dos SANTOS. Rua Coração de Maria, 53, apto. 101 (Meier), Rio de Janeiro, D. F. Chief, Northeast section, Division of Geography, Conselho Nacional de Geografia. Regional geography, especially the Northeast of Brazil.

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João Dias SILVEIRA. Caixa Postal 105 B, São Paulo, S. P. Instructor of physical geography, Faculdade de Filosofia, Universidade de São Paulo. Regional geography, especially of the tropical regions.

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Hilgard O'Reilly STERNBERG. Rua Real Grandeza, 182, Casa 5A, Rio de Janeiro, D. F. Professor of Geography, Faculdade Nacional de Filosofia. Geography of Brazil.

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Jorge ZARUR. Rua Doze de Maio, 214, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Regional and economic geography, especially of Brazil and the Americas.

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Pedro Pinchas GEIGER. Rua Barão de São Francisco, 502, apto. 202, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Regional geography of West Central Brazil.

Janusz GERULEWICZ. Rua Sete, 26, Goiânia, Goiás. Chief, Aerophotogrammetric Service of Goiás. Cartography, especially in southern Goiás.

Altair GOMES. Av. João Ribeiro, 142, apto. 201, Rio de Janeiro, D. F. Teacher of geography. Human and economic geography.

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Miguel Alves LIMA. Av. Beira Mar 436, Rio de Janeiro, D. F. Chief, Section of Special Studies, Conselho Nacional de Geografia. Geomorphology.

Oswaldo Castro LOBO. Av. Francisco Bhering, 7, apto. 52, Rio de Janeiro, D. F. Ministry of Foreign Affairs. Economic geography.

Lucas LOPES. Rua Visconde de Pirajá, 284, apto. 703, Rio de Janeiro, D. F. Professor of economic geography, Faculdade de Ciências Econômicas de Minas Gerais.

Luiz Arlindo Tavares de LYRA. Rua Mario Portela, 40, apto. S 202, Rio de Janeiro, D. F. Economic and regional geography, migrations in Brazil.

Maria da Annunciação Bina MACHADO (Sra.). Rua Florêncio Ygartua, 48, Pôrto Alegre, Rio Grande do Sul. Teacher of geography. Human geography.

Alceo MAGNANINI. Av. Beira Mar 436, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Biogeography and ecology.

Blàs Berlanga MARTINEZ. Rua Dr. Villa Nova, 268, São Paulo, S. P. Assistant in economic geography, Universidade de São Paulo. Industrial geography, especially in São Paulo.

Dirceo Lino de MATTOS. Rua Dr. Villa Noca, 268, São Paulo, S. P. Instructor in economic geography, Universidade de São Paulo. Agricultural geography, especially of tropical regions.

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Beatriz Célia Corrêa de MELLO (Sra). Rua Araujo Lima, 57, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Human geography.

Luiz Emygdio de MELLO FILHO. Rua Henrique Morize, 315, Apto, 101, Rio de Janeiro, D. F. Naturalist, Division of Botany, Museu Nacional. Phytogeography.

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Waldemar PANADES. Rua Leôncio de Carvalho, 273, São Paulo, S. P. Teacher of geography and history.

Raymundo S. PATURY. Rua Raul de Pompéia, 132, Apto. 204, Rio de Janeiro, D. F. Mining and civil engineer. Mineral geography.

Altamirano Nunes PEREIRA. Travessa Santa Leocadia, 20, Rio de Janeiro, D. F. Professor of economic geography, Faculdade Nacional de Ciências Econômicas.

Pasquale PETRONE. Rua Maria Antonia, 294, São Paulo, S. P. Teacher of geography. Regional geography, especially Franca area of São Paulo.

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Lourenço Mário PRUNES. Universidade do Rio Grande do Sul, Pôrto Alegre, Rio Grande do Sul. Professor of human geography, Faculdade de Filosofia, Universidade do Rio Grande do Sul.

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Dora de Amarante ROMARIZ (Sra). Rua Angelo Bitencourt, 20, Casa 1 (Vila Isabel) Rio de Janeiro, D. F. Conselho Nacional de Geografia. Regional geography, especially the east and south of Brazil, and phytogeography.

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José Nicolau dos SANTOS. Rua Padre Ildefonso, 128, Curitiba, Paraná. Professor of human geography, Faculdade de Filosofia, Ciências e Letras, Universidade do Paraná.

Milton Almeida SANTOS. Rua Conselheiro Saraiva, 110, Ilhéus, Bahia. Secretário Geral do Diretorio Municipal de Geografia de Ilhéus. Professor of the geography of Brazil, Colégio Municipal. Regional and human geography especially of the cacao area of Brazil.

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Honório de Souza SILVESTRE. Rua Souto Carvalho, 25, Rio de Janeiro, D. F. Professor of physical geography, Faculdade de Filosofia, Instituto Lafayette.

Ruth Mattos Almeida SIMÕES.(Sra). Rua Almirante Ari Parreiras, 271, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Human geography.

Elsa Coelho de SOUZA (Sra). Rua Aiuru, 63, Apto. 201, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Human geography.

Ney STRAUCH. Rua David Campista, 12, Apto. 10, Rio de Janeiro, D. F. Conselho Nacional de Geografia. Economic geography, especially of the Northeast of Brazil.

José Maria Leite de VASCONCELOS. Rua Xavier da Silveira, 114, Rio de Janeiro, D. F. Professor of the geography of Brazil, Faculdade de Filosofia, Instituto Lafayette.

Hugo Segadas VIANA. Rua Ana Nery, 2058, Rio de Janeiro, D. F. Professor of human geography, Faculdade de Filosofia, Instituto Lafayette.

Francisco VILLANUEVA. Rua Dr. Pedrosa, 288, Curitiba, Paraná. Professor of physical geography, Faculdade de Filosofia, Ciências e Letras, Universidade do Paraná.

Alberto H. WANDERLEY. Rua Leopoldina, Belo Horizonte, Minas Gerais. Substitute instructor of economic geography, Faculdade de Ciências Econômicas, Universidade de Minas Gerais.

AGENCIES OF THE BRAZILIAN GOVERNMENT WHICH CARRY ON GEOGRAPHIC RESEARCH STUDIES

THE CONSELHO NACIONAL DE GEOGRAFIA

The Conselho Nacional de Geografia was established by a decree (n. 1,527) issued by President Vargas on 24 March 1937. The Conselho is a part of the Instituto Brasileiro de Geografia e Estadística, the other half of which includes the Conselho Nacional de Estadística, charged with responsibility for Brazilian statistical studies and with the census. The geographical part of the IBGE is charged with photogrammetric and cartographic work as well as studies which are strictly geographical. The Conselho Nacional de Geografia consists of three parts: 1. the Secretaria Geral which, in addition to the administration, includes responsibility for a library, for the organization of scientific or cultural conferences, for relations outside of Brazil with such agencies as the International Geographic Union or the Commission on Geography of the Pan American Institute of Geography and History; 2. the Divisão de Geografia which carries out the program of mapping; and 3. the Divisão de Geografia which carries out the program of geographical studies.

The Secretaria Geral is guided by two deliberative bodies representative of all the aspects of Brazilian scientific and cultural life which impinge on

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geography. The first of these is the General Assembly which meets once a year and which is made up of the official representatives of all the states and federal territories. The second body is the Central Directorate which meets at frequent intervals and is made up of technical representatives of each of the ministries of the federal government and of the Prefeitura of the Federal District.

In order to promote and coordinate geographical activities throughout the country the Conselho is represented in each state and in each município by regional and local agents -- Diretórios Regionais and Diretórios Municipais.

In the international field the Conselho takes part in consultations, conferences, and assemblies of the International Geographic Union, of the Commission on Cartography, and of the Commission on Geography (PAIGH). Christovam Leite de Castro is a vice-president of the IGU, and is president of the Commission on Geography of the PAIGH.

The Conselho has primary responsibility for the geographical maps of Brazil. These maps consist of quadrangles on scales of 1/100,000 and 1/500,000. Up to the end of 1950 some 30 sheets of these maps had been published and work on the others was in various stages. The first step in the process of making these maps was the establishment of a network based on astronomically determined points. Field parties tied these points together by triangulation, levelling, and by the interpretation of air photographs. All this work is charged to the Divisão de Cartografia, and has been assisted by U. S. Army and Air Force missions. The Divisão de Geografia, through its local agents, has prepared relatively large-scale maps of each of the municípios which are, of course, of widely diverse quality. The Divisão also prepares the official map of the município boundaries for the use of the statistical agents and it makes a revision of this map every five years. The Divisão is charged with the work of standardizing the official usage with regard to Brazilian place names.

The Divisão de Geografia has other responsibilities in addition to work in the central office, and in addition to responding to requests for geographical data from other Brazilian agencies. Its staff is also engaged in field studies in various parts of the national territory. The Divisão is divided into regional sections: the North, Northeast, East, South, and West-Central. Specialists in each area carry on fiels studies of such problems as colonization, land quality as revealed by the pattern of vegetation, and others. It carried out special studies related to the proposed transfer of the federal capital from Rio de Janeiro to the interior; it is collaborating in the studies aimed at developing the economic possibilities of the Amazon Basin; and it is working on the plans for the utilization of electric power to be generated at the Paulo Afonso Falls on the Rio São Francisco.

The Conselho has a program of publication. It publishes two periodicals: the Revista Brasileira de Geografia, a quarterly, which was started in January, 1939, and which, up to the end of 1950, had published 43 numbers (through the third number of 1949); and the Boletim Geografico, a monthly, which was started in July 1943 and which has published up to the end of 1950, 81 numbers. The Revista contains professional articles, biography, and official acts relating to geographical matters. It also contains the

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highly effective drawings of Brazilian scenes by the geographical artist - Percy Lau. The Boletim contains shorter papers, reprints of older writings on Brazil, some translated from foreign languages, and professional news items. In addition to its periodicals the Conselho publishes a series of books on geographical subjects -- the Biblioteca Geografica Brasileira.

The Conselho has undertaken a number of other activities in line with its general responsibility for the promotion and coordination of geographical matters in Brazil. It provides courses of lectures for secondary school teachers. It offers work in photogrammetry and photo-interpretation. It provides for lectures by visiting foreign geographers, or by geographers from the various parts of Brazil. It has a collection of Brazilian photographs, and some colored films of different aspects of Brazilian life taken by Mr. Sintzenich.

The address of the Secretaria Geral of the Conselho is Av. Beira Mar, 436, Rio de Janeiro, Distrito Federal.

LIST OF OTHER GOVERNMENT AGENCIES WHICH CARRY ON GEOGRAPHICAL WORK

The North:

Amazonas
- Diretório Regional de Geografia, Manáus.
- Instituto de Etnologia, Manaus.

Pará
- Comissão Demarcadora de Limites, Belém.
- Diretoria de Obras Públicas, Terras, e Viação, Belém.
- Diretório Regional de Geografia, Belém.
- Instituto Agronômico do Norte, Belém.
- Museu Paraense Emílio Goeldi, Belém.

Territory of Acre
- Departamento de Geografia e Estatística do Território do Acre.
- Diretório Regional de Geografia.

Territory of Amapá
- Departamento de Geografia e Estatística do Território do Amapá.

The Northeast:

Maranhão
- Diretorio Regional de Geografia, São Luis.

Piauí
- Diretório Regional de Geografia, Teresina.
- Instituto de Geografia e História Piauiense, Teresina.

Ceará
- Diretório Regional de Geografia, Fortaleza.

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Rio Grande do Norte
Diretório Regional de Geografia, Natal.

Paraíba
Comissão de Estudos do Alto Piranhas, Curema.
Comissão de Estudos do Alto Piranhas, Souza.
Diretório Regional de Geografia, João Pessoa.
Escola de Agronomia do Nordeste, João Pessoa.
Secretaria de Agricultura, João Pessoa.

Pernambuco
Diretório Regional de Geografia, Recife.
Secretaria de Viação e Obras Públicas, Recife.
Instituto Arqueológico e Geográfico, Recife.
Secretaria de Agricultura: 1 Instituto de Pesquisas Agronômicas;
2. Servico Estadual do Algodão.

Alagoas
Diretoria de Viação e Obras Públicas, Maceió.
Diretório Regional de Geografia, Maceió.
Secretaria de Agricultura, Maceió.

The East:

Sergipe
Instituto Histórico e Geográfico, Aracajú.
Secretaria da Agricultura, Viação e Obras Públicas, Aracajú.

Bahia
Departamento de Geografia (in the Secretaria de Agricultura, Indústria e Comércio do Estado de Bahia), Salvador.
Departamento Nacional de Portos, Rios, e Canais, Salvador.
Diretoria de Servicos Geográficos, Geológicos, e Meteorológicos, Salvador.
Diretório Regional de Geografia, Salvador.
Instituto de Cacau, Salvador.
Servico Meteorológico do Estado de Bahia, Salvador.

Minas Gerais
Departamento Geográfico do Estado de Minas Gerais, Secretaria de Viação, Belo Horizonte.
Diretório Regional de Geografia, Belo Horizonte.
Instituto Regional de Meteorologia, Belo Horizonte.

Espírito Santo
Diretório Regional de Geografia, Vitória.
Instituto de Geografia, Geologia e Hidrologia de Espírito Santo, Vitória.
Secretaria de Agricultura, Vitória.
Servico Geográfico, Geológico e Mineralógico, Vitória.

Rio de Janeiro
Departamento de Geografia da Secretaria de Agricultura, Viação e Obras Públicas, Niteroí.

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The South:

São Paulo
- Departamento de Cultura da Prefeitura Municipal, São Paulo.
- Departamento Geográfico e Geológico do Estado de São Paulo, São Paulo.
- Diretório Regional de Geografia, São Paulo
- Instituto de Botânica, São Paulo.
- Instituto Agronômico de Campinas, Campinas.
- Instituto Astronômico e Geofísico de São Paulo, São Paulo.
- Instituto Geográfico e Geológico de São Paulo, São Paulo
- Instituto Regional de Meteorologia, São Paulo.
- Secretaria de Agricultura, Indústria e Comércio, São Paulo.
  1. Departamento de Produção.
  2. Diretoria de Terras, Colonização e Imigração.
- Serviço Meteorológico do Estado de São Paulo, São Paulo.
- Serviço de Hidrografia do Instituto Geográfico e Geológico, São Paulo.
- Serviço de Imigração e Colonização da Secretaria de Agricultura, Indústria e Comércio, São Paulo.

Paraná
- Departamento de Terras e Colonização, Curitiba
- Diretório Regional de Geografia, Curitiba.
- Secretaria de Agricultura, Indústria e Comércio, Curitiba.
  1. Divisão de Fomento da Produção.
  2. Instituto de Geologia e Pesquisas Tecnológicas. (Chief, Dr. Reinhard Maack).

Santa Catarina
- Departamento Estadual de Geografia e Cartografia, Florianópolis.
- Departamento de Geografia e Geologia de Santa Catarina, Florianópolis.
- Diretoria de Geografia e Terras, Florianópolis.
- Diretório Regional de Geografia, Florianópolis.
- Secretaria da Fazenda e Agricultura, Florianópolis.

Rio Grande do Sul
- Diretório Regional de Geografia, Pôrto Alegre.
- Divisão de Levantamentos do Serviço Geográfico do Exército, Pôrto Alegre.
- Instituto Riograndense do Arroz, Pôrto Alegre.
- Secretaria de Agricultura, Indústria e Comércio, Pôrto Alegre.
- Servico Meteorológico do Rio Grande do Sul, Pôrto Alegre.

The West-Central:

Goiás
- Departamento de Agricultura, Indústria e Comércio, Goiânia.
- Departamento de Geografia e Cadastro, Goiânia.
- Diretório Regional de Geografia, Goiânia.

Mato Grosso
- Comissão Mista Brasil-Boliviana (Ministério de Viação e Obras Públicas), Corumbá.
- Diretório Regional de Geografia, Cuiabá.
- Grêmio Geográfico do Instituto de Colonização Nacional, Cuiabá.

Territory of Guaporé
- Departamento de Geografia e Estatística do Território de Guaporé, Porto Velho.

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Secretaria Geral, Porto Velho.

Territory of Rio Branco.
Departamento de Geografia e Estatística do Território do Rio Branco, Boa Vista.

The Federal District:

Centro Nacional de Pesquisas Agronômicas (Chiefly soil studies of the Northeast).
(Conselho Nacional de Geografia).
Conselho Nacional de Petróleo.
Conselho Nacional de Proteção aos Indios
Conselho Florestal Federal.
Conselho de Imigração e Colonização.
Comissão Brasileira Demarcadora de Limites.
Conselho Nacional de Aguas e Energia Eléctrica.
Conselho Nacional de Minas e Metalurgia
Divisão de Fronteiras (Ministério dad Relações Exteriores).
Divisão de Geologia e Mineralogia do Museu Nacional.
Departamento Nacional de Obras de Saneamento.
Departamento Nacional de Estradas de Rodagem.
Departamento Nacional de Estradas de Ferro.
Departamento Nacional de Portos, Rios e Canais.
Departamento de Geografia da Prefeitura do Distrito Federal.
Departamento de Demografia e Estatística.
Departamento Nacional da Produção Mineral.
1. Divisão de Aguas (Water resources, and rainfall- maintains many rainfall stations separate from the Meteorological service. Published the Atlas Pluviométrico.)
2. Divisão de Geologia e Mineralogia (Many studies in field geology. Prepared the geological map of Brazil).
Departamento Nacional da Produção Vegetal - Divisão de Terras e Colonização.
Divisao de Caça e Pesca.
Diretoria de Rotas Aéreas (Prepares maps for civil and military aviation).
Diretoria de Hidrografia e Navegação (Prepares charts of coasts and ports).
Departamento Nacional de Imigração.
Divisão de Serviços Equatoriais e Correlatos do Observatório Nacional.
Divisão de Serviços Meridianos e Anexos do Observatório Nacional.
Instituto Brasileiro de Mineração e Metalurgia.
Instituto de Colonização Nacional.
Instituto de Ecologia e Experimentação Agrícola.
Instituto de Geografia e História Militar.
Instituto Oceanográfico Brasileiro.
Instituto de Açúcar e do Alcool.
Instituto Nacional de Mate.
Instituto Nacional do Pinho.
Instituto Nacional do Sal.
Inspetoria Federal de Obras Contra as Secas (Maps and studies of the dry parts of the Northeast).
Observatório Nacional.
Serviço de Cartografia e Aerofotografia.
Serviço de Aguas, Pluviometria e Inundação.

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Serviço de Economia Rural.
Serviço de Geologia (da Prefeitura do Distrito Federal).
Serviço de Meteorologia.
Serviço de Proteção aos Indios.
Serviço Geográfico do Exército. (Makes topographic maps and special studies of interest to the military. Publishes an Anuario Geográfico).

GEOGRAPHICAL SOCIETIES

Associação dos Geógrafos Brasileiros:

The Associação dos Geógrafos Brasileiros was founded in São Paulo in 1934 under the leadership of the French professor Pierre Deffontaines. Its object is to investigate and disseminate geographical subjects, especially Brazilian (pesquisar e divulgar assuntos geográficos, principalmente brasileiros). It provides for the interchange of ideas and information through periodic meetings, publications, and through the organization of regional sections. It carries on geographical research studies, and assists in the development of more effective geography teaching at all grades.

The AGB has three classes of membership. The Sócio Efetivo is a person who has published an original work of proved value in any branch of geography and who is elected by the members of this category. The Sócio Cooperador is a person who is carrying on geographical studies or who is interested in the development of geography. The Sócio Honorário is a person who is honored by the AGB for meritorious work in geography.

The officers of the AGB who were in office at the end of 1950 were:

President: José Veríssimo da Costa Pereira
Secretary: Fernando Marques de Almeida
Treasurer: Ari França
Editor of the Annals: Aroldo de Azevedo
Consultative Commission: Renato Silveira Mendes
Fábio de Macedo Soares Guimarães
Lúcio de Castro Soares
Ex-Presidents: Peirre Monbeig; João Dias da Silveira

The AGB has two regional sections. One is the Secção Rgional de São Paulo (João Dias da Silveira, director); the other is the Secção Regional de Rio de Janeiro (Lúcio de Castro Soares, director).

The AGB publishes the Anais da Associação dos Geógrafos Brasileiros (Vol. I appeared in 1945-46). The periodical Geografia, launched in 1935, published eight numbers during 1935 and 1936 before its series was ended. In addition each of the regional sections publishes a bulletin: Boletim Paulista de Geografia (Aroldo de Azevedo, editor), first volume 1949; and Boletim da Secção Regional do Rio de Janeiro (Elza Coelho de Souza, editor), first volume 1949.

Instituto Arqueológico, Histórico e Geográfico Pernambucano (Recife).

Instituto Geográfico e Histórico da Bahia (Salvador).

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Instituto Histórico e Geográfico Brasileiro (Rio de Janeiro).

Founded by the Emperor Dom Pedro II, this is the oldest learned society in South America, and probably the oldest geographical and historical society in the world which is still in existence. Publishes the Revista do Inst. Geogr. e Hist. Bras. See the dedication of Volume 3, 1937 of the Handbook of Latin American Studies (Harvard University Press, 1938).

Instituto Histórico e Geográfico da Ceará (Fortaleza).

Instituto Histórico e Geográfico Paraibano (João Pessoa).

Instituto Histórico e Geográfico de Minas Gerais (Belo Horizonte).

Instituto Histórico e Geográfico do Rio Grande do Sul (Pôrto Alegre).

Instituto Histórico e Geográfico de São Paulo (São Paulo).

Sociedade de Geografia do Rio de Janeiro (Rio de Janeiro).

THE TEACHING OF GEOGRAPHY

The major divisions of the educational sequence in Brazil differs somewhat from those in the United States as indicated in the following comparison:

U.S.A.		BRAZIL	
Elementary	8 years	Primário	4 years
		Admissão	1 year
		Ginásio	4 years
High	4 years	Colégio	3 years
College	4 years	Faculdades	4-5 years
Graduate, M.A.	1 year		
Ph.D.	2- 3 years	Doutorado	2 years

Primário:

The teaching of geography in the primary grades differs widely from one part of Brazil to another. Each state has its own system of geographic instruction. In general, the purpose is to give some elementary concepts regarding the geography of Brazil and of the continents. Only in the larger cities is this teaching at all effective.

Ginásio and Colégio:

Geography is given for two hours per week throughout the seven years of the Ginásio and Colégio, and all pupils are included. Since 1942, when the curriculum was revised under the leadership of Capanema (then Minister of Education), the following sequence of subjects has been followed:

Ginásio
1. Physical and human geography
2. Geography of the continents
3. Physical and human geography of Brazil

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Colégio
4. Regional geography of Brazil
1. Physical geography
2. Geography of the Great Powers
3. Geography of Brazil

Faculdades:

When a student leaves the colégio to attend a university there is no longer a uniform, standard course of study, but rather a wide selection. The students who take geography at the university level do so for purposes of professional specialization, not for "general education". It is possible to specialize in economic geography in one of the several Faculdades de Ciências Econômicas. At the Instituto Rio Branco students are given a background of geographical knowledge for use on the foreign service.

The two most important university centers for geographical training are the Faculdade Nacional de Filosofia (Universidade do Brasil, Rio de Janeiro, D. F.), and the Faculdade de Filosofia (Universidade de São Paulo, São Paulo, S.P.). Courses at the University of São Paulo were first offered in 1934 by Pierre Deffontaines. From 1935 until 1947 Pierre Monbeig offered geography courses, with the addition from time to time of other French scholars -- De Martonne (1937), Dion (1947), Gourou (1948). In Rio de Janeiro, Professor Francis Ruellan offers work in geomorphology at the University in addition to work for the Conselho Nacional de Geografia. In spite of occasional lecturers from the United States and other countries, the university instruction is deeply influenced by the French tradition.

The University of São Paulo offers two courses leading to degrees in geography. The Curso Fundamental requires four years, the first three of which are made up of required courses:

1. Physical geography
   Human geography

2. Physical geography
   Human geography
   Geography of Brazil

3. Physical geography
   Human geography
   Geography of Brazil

The fourth year of this course is made up of electives, including offerings in the teaching of geography and educational psychology. At the end of the four years the student receives a diploma of Licenciado em Geografia.

The other offering is a program entitled Curso de Especialização em Geografia. Entrance is limited to students who have completed the first three years of the Curso Fundamental or its equivalent. The more advanced program includes work in the following subjects:

Physical geography
Human geography
Geography of Brazil
Cartography
Geology
Geodesy and topographic mapping
Ethnology
Sociology
Political economy
Statistics

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Upon the completion of this more advanced course the student receives the diploma of Especialista em Geografia.

Doutorado:

The Doctorate is granted after the preparation and defense of a dissertation. To the end of 1950, five Doctorates have been granted to scholars who have completed their work at São Paulo, in the Faculdade de Filosofia.

Faculdades Throughout Brazil:

At the end of 1950 geography was offered in ten universities and in 12 additional Faculdades not associated with university centers. There were 22 programs of geography, distributed in the following parts of the country:

Distrito Federal	Rio de Janeiro (state)
São Paulo	Minas Gerais
Paraná	Bahia
Rio Grande do Sul	Pernambuco
Goiás	Ceará

(A complete list of these programs and institutions, together with additional details regarding the nature of the courses, is on file with Prof. Preston E. James, Department of Geography, Syracuse University, Syracuse 10, New York).

MATERIALS FOR GEOGRAPHIC RESEARCH IN BRAZIL

Materials for geographic research considered in this report include books, maps and statistics. In all three the student of geography in Brazil is handicapped.

Generally the collections of books and periodicals are very incomplete. The major geographical library in Brazil is that of theConselho Nacional de Geografia. Another important library is located in São Paulo. In both, collections include a good coverage of French sources, poor coverage of materials from the United States. In the Conselho library there are many sets of standard periodicals, but few of them complete, even for such sets as the Geographical Review. The difficulty of purchasing books in the United States is so great that progress in building up these libraries is very slow.

The lack of large-scale topographic maps in Brazil is a most serious handicap for serious geographical research studies. The only topographic maps usually available are those of the Servico Geográfico do Exército (Geographical Service of the Army -- Chief, General Poli Coelho). The army maps, which are of excellent quality, cover only small portions of Rio Grande do Sul, the coastal zone of the Northeast and a few others. The state of São Paulo has a topographic series, the newest maps of which are of first-rate quality. So also the maps of Minas Gerais give partial coverage for that state. In both cases, the maps made before 1940 are too highly generalized to be useful. Otherwise, base maps for geographical work must be improvised from war-time air photographs (1/40,000), or must be on chorographic scales (1/250,000 - 1/1,000,000).

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Statistics for minor civil division (municípios) are available for the various Brazilian censuses, and some unpublished statistics can be had (after much delay) at the Conselho Nacional de Estatística in Rio de Janeiro. Usually the changes in município boundaries between censuses make comparison difficult or impossible. The official município maps, moreover, are far from accurate even for the 1950 census.

In any case, most of the materials for geographic research, such as they are, can be found in the two cities of Rio de Janeiro and São Paulo.

FOREIGN GEOGRAPHERS IN BRAZIL

Geography in Brazil owes its considerable development, as compared with geography in other Latin American countries, to the ideas first brought to that country by the Brazilian geographer Carlos Miguel Delgado de Carvalho. Professor Delgado, who was educated in Paris, applied the concepts of the French geographers to studies in Brazil early in the present century. Through his influence, the sequence of French scholars that has influenced modern geography in Brazil, was started.

The French geographers who, since 1934, have done the most to develop geographical interest and studies in Brazil include Pierre Deffontaines, Pierre Monbeig, and Francis Ruellan. The latter is at present serving with the Conselho Nacional de Geografia and is teaching at the Faculdade Nacional de Filosofia in Rio de Janeiro

Before 1930 a number of foreign geographers, geologists, and travelers have left a long and important bibliography of writings on Brazil. Some of the more distinguished names in this list are: Pierre Denis, John Casper Branner, Mark Jefferson, Orville Derby, Henri Gorceix, Alfred Russell Wallace, Philipp von Luetzelburg, Paul Le Cointe, Luis Cruls, Charles Frederic Hartt, Wilhelm von Eschwege, Auguste de Saint-Hilaire, and John Mawe.

The following list of foreign geographers have contributed studies of Brazilian problems since 1930:

Arbos, Philippe. Petropolis.
Bondar, Gregório. Studies of cacao in Bahia.
Cameron, Charles R. Studies of immigration and colonization.
Dansereau, Pierre. Studies of biogeography and ecology.
De Martonne, Emmanuel. Studies of geomorphology, especially in eastern Brazil.
Deffontaines, Pierre. Studies of human settlement in eastern Brazil.
Freise, F. W. Estimates of the population capacity of Brazil; studies of drought region of Northeast Brazil.
Gourou, Pierre. The Amazon region.
Hanson, Earl P. The Amazon and Orinoco.
Hunnicutt, Benjamin. Agricultural geography, especially cotton.
James, Preston E. Population and settlement in the South, Southeast, and Northeast.
Jones, Clarence F. Settlement problems in the central interior.
Long, Robert. The Paraíba Valley.
Maack, Reinhard. Geomorphology and settlement in southern Brazil, especially Paraná.

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Maull, Otto. Settlement problems in the south and southeast.
Monbeig, Pierre. Settlement in São Paulo, in the Northeast, and in the cacao region of Bahia.
Oberacker, R. German settlement in the south, especially Rio Grande do Sul.
Platt, Robert S. Studies of occupance in São Paulo and the central interior.
Quelle, Otto. Exploratory studies in the South and Northeast.
Rawitscher, Felix. Biogeography and ecology in southern and central Brazil.
Ruellan, Francis. Geomorphology of Guanabara Bay and other coastal areas; studies in the Planalto Central.
Setzer, José. Studies of soil in São Paulo.
Vageler, Paulo. Soils in São Paulo and in the Amazon.
Waibel, Leo. Problems of settlement in the South, the central interior, and the Northeast.

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ARGENTINA, URUGUAY, AND PARAGUAY

ARGENTINA[1]

GEOGRAPHERS AND THEIR RESEARCH PROGRAMS

Geographical research and field work in Argentina by individual geographers is restricted to a very few professors of geography and related sciences in the universities and secondary schools. The main concentrations of geographers are to be found in the Universidad Nacional de Tucuman and in the city of Buenos Aires. The group at Tucuman is consolidated, well directed and very active. The geographers in Buenos Aires are scattered all over the city, do not work as a group and only a few are active. Outside of the publications of "GAEA" and the university bulletins, there is little published other than texts for primary and secondary schools. The latter, written by "professors" in the public schools, are generally on the physical, human and economic geography of Argentina and on the various continents, in accordance with the official programs laid down by the Ministry of Education.

There are few foreign geographers now working in Argentina. The Universidad Nacional de Tucuman has contracted a number of European geographers to give courses in its geography department, and in the Instituto de Estudios Geográficos. The Servicio Meteorológico Nacional and the Observatorio de La Plata employ some foreign professionals for geographic, astronomic, geophysical and oceanographic work. In former times foreigners were the leaders in scientific geographic reporting on Argentina. Some of the most outstanding of these and their works are:

1. Felix de Azara, "Viaje por la America Meridional de 1789 a 1801", Paris, 1809.
   Felix de Azara, "Descripcion e Historia del Paraguay y Rio de la Plata", Madrid, 1847.
2. Woodbine Parish, "Buenos Aires and theRio de la Plata", London, 1839.
3. Alcides D'Oribigny, "Viajes a la America Meridional, 1826-32", 3 vols. Paris, 1834-47.
4. Charles Darwin, "Viaje de un naturalista alrededor el mundo," London, 1845.
5. V. Martin de Moussy, "Descripcion Geographique et Statistique de la Confederation Argentine", 3 vols. and an "Atlas Geographique", Paris, 1860-64.
6. German Burmeister, "Descripcion Physique de la Republique Argentine", Buenos Aires and Paris, 1875.
   German Burmeister, "Vistas patagonicas del Rio de la Plata", (Atlas).

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1. This section of the report was prepared by Dr. Arthur P. Biggs, Geographic Attache of the United States Foreign Service, who wishes to express his gratitude for assistance given him by Professor Jorge Chebataroff and Professor Horacio Ureta Martinez.

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7. Enrique A. S. Delachaux, "Las Regiones Fisicos de la Republica Argentina", en Revista del Museo de La Plata, XV, 1908.
8. Pierre Denis, "Chapitres de geographie economique", 1916, Universidad Nacional de Tucuman, Tucuman.
   Pierre Denis, "La Republique Argentine", (La mise en valeur du pays), 1920.
9. Franz Kuhn, "Fundamentos del fisiografia Argentina", 1922.
   Franz Kuhn, "Geografia de la Argentina", (Colleccion Labor).

The following list comprises most of the university professors, a large number of secondary teachers of geography, and some few persons in government service, other than education, who are interested in and actively working in some phase of the geographical field:[2]

Dr. Eduardo ACEVEDO DIAZ. Director, Comisión Nacional de Museos y Lugares Historicos; Professor of Geography in Escuela Nacional "Nicolas Avellanneda"; Lawyer. Publications: Asia y Africa; Nociones de geografía astronomica, matemática, y fisica, I Ano; Geografía de Europa y Oceania, II Ano; Geografía de America, Ciclo basico; Geografía de America, Tierras Arcticas y Antartida; La República Argentina: Parte fisica, IV Ano; La República Argentina: Parte politica y económica, V Ano; (Has written some novels). Program: Now revising these geography texts.

Primavera ACUNA DE MONES RUIZ. Professor of Geography in Escuela Normal #4 "Estanislao Zeballos", and in Escuela Nacional de Comercio #3, "Hipolito Vieytes", Buenos Aires. Publications: Manual de geografía de la república Argentina. I: Aspeto fisico; Manual de geografía general, Asia y Africa, I Ano, ciclo basico; Manual de geografía de Europa y Oceania, II Ano, ciclo basico; Manual de geografía de America, III Ano, ciclo basico; Tucuman, tierra de belleza, de tradicion y de riqueza; Antartida argentina - Islas oceanicas - Mar Argentina; Cuadernos de trabajos practicos.

Alberto M. de AGOSTINI. Salesian father, explorer, mountain climber, glaciologist. Specialist in Patagonia mountain area. (Italian). Publications: Andes Patagonicas (Buenos Aires, 1945, 3rd edition in Italian); Paisaje Magallanicos (Punta Arenas, 1945); Guia Turistica de Magallanes y Canales Fueguinos (P.A., 1946); Mis Viajes a la Tierra del Fuego (out of print); La naturaleza en la Patagonia septentrional (out of print); El Cerro Lanin y sus alrededores (out of print); La Asencion del Cerro San Lorenzo (included in Andes Patagonicas).

Dr. Francisco AMATO AGOGLIA. Professor of Economic Geography, I course, Facultad de Ciencias Económicas, Comerciales y Políticas, Universidad Nacional de Litoral, Rosario.

Sra. Selva S. de ANDRES. Chief of a field work section, Instituto de Estudios Geográficos, Universidad Nacional de Tucuman. In preparation: Reconstrucción de la vegetacion original de Tucuman segun el itiner-

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2. Additional information on past positions and publications of individuals is contained in "Refertorio de Geografos de la Argentina", Sociedad Argentina de Estudios Geográficos, GAEA, Boletín No. 27, 1950, pp. 27-42.

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ario de German Burmeister, 1860; El pucara de la Loma Verde en el Valle de Tafi.

Jose ANESI. President and Director, Sociedad Geográfica Americana; ex-cartographer. Interest: Publishing the Revista Geográfica Americana; (No geographical or cartographical work other than in this magazine published by the society of which he is Director).

*Francisco de APARICIO.[3] Retired Professor of Geography. Interest: Archaeology and human geography, and anthropogeography. Publications: La vivienda natural en la region serrana de Cordoba.

*Dr. Romualdo ARDISSONE. Director, Instituto de Geografía, Facultad de Filosofía y Letras, Universidad Nacional de Buenos Aires; Professor of Human Geography in the same university. Interest: Human geography. Publications: Toponimia argentina (1922); Poblaciones argentinas: Zapala, (1924); El idioma y la nacionalidad como factores del comercio; Como se forma un pueblo. A proposito del nacimiento y desarrollo de Don Bosco. (1931); San Antonio Oeste (1932); Tres jalones del desarrollo urbano argentino (1937); La forma del territorio de los Estados (1933); Algunas observaciones acerca de las viviendas rurales en la Provincia de Jujuy (1937); Datos historicos acerca de la precipitaciones pluviales en la zona Buenos Aires, desde el sigle XVI hasta 1821 (1937); Grandes lineas de la geografía de la Antartida (1939); Influencia toponimica sudamericana del ombu (1940); La instalación humana en el valle de Catamarca (1941. Libro premiado por la Comisión Nacional de Cultura, Premio Nacl.); Instalación indigena en el valle Calchaqui (1940); Un ejemplo de instalación humana en el Valle de Calchiqui: el pueblo Cachi (1942. 2nd edition now being printed.); Las pircas de Ancasti (1945); Los nombres de lugar de la Argentina del punto de vista geográfico (1945); Contribución al estudio de la vivienda argentina (1948). In preparation: Toponimia argentina del optimismo; Problemas y procendimientos de la zootoponomastica argentina; Aspecto de la geografía linguistica argentina; Geografia urbana de San Fernando; Demogeografía e instalación humana de San Juan; Geografia de los cercos en San Juan; Geografía de los cercos en la Argentina; Geografía de la propiedad en la Argentina; La region de Cuyo; Geografía del color de la Argentina; Instalación humana a lo largo del río Parana; Instalación humana en el litoral bonaerense; Instalación humana de la orillas derecha del río de la Plata; Geografía humana de la quebrada de Humahuaca; Geografía humana del bolson de Pipanaco; Toponimia de San Martin, toponimia política, fitotoponimia de la Provincia de San Luis, el toponimo Alpatauca, toponimos argentinos de origen italiano, etc.; Geografía de la viviendas de San Juan; Construcciones de tepe, de tapia y de cardon.

*Antonio ARENA, (Ing. Agronomo). Director, Instituto de Suelos y Agrotecnia, Ministerio de Agricultura, Buenos Aires. Interest: Soil evolution and conservation. Working on: Soil conservation and erosion control in the pampa and Misiones areas; "Suelos de la República Argentina" for publication in "GAEA", Geografía de la Argentina. collaborating on: Soils and irrigation in upper Rio Negro Valley; soils and irrigation in valley of Concaran (San Luis); soils and irrigation in the valley of

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3. The stars (*) denote leaders in the geographic and related fields in Argentina by virtue of person's work and positions held.

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Tulum (San Juan); typical soils of the San Rafael and General Alvear region in Mendoza; soils of the citrus regions of Concordia (Entre Rios) and Bella Vista (Corrientes).

Luis ARENA. Professor of Teaching Methods, Instituto de Profesorado Secundario, Buenos Aires. Publications: Argentina: Geografía para IV grado de Primaria (con atlas); Argentina: Geografía para V grado Primaria (con atlas). Working on: A new series of primary geographic texts in accordance with the new govt. program.

Vaino AUER. Ex-professor of Geography, University of Helsinki, Finland and Director ad honorem, Instituto de Suelos y Agrotecnia. Publications: Las capas volcanicas como nuevo metodo de cronologia postglacial en Fuego-patagonia. (for the Instituto de Suelos y Agrotecnia.

Professor Herberto A. BALBIANI. Secretary General of "GAEA"; Professor of Physical Geography of Argentina and Geology at the Colegio Nacional de Buenos Aires; Professor of Geography in the Liceo Militar "General San Martin" and Colegio Nacional #8, Buenos Aires. Interest: Physical geography of Argentina; biogeography. Publications: Viaje a Culampaja (estudio fisiográfico de la sierra de Culampaja), in "GAEA" Anales, 1945; Trabajos practicos de geografía fisica Argentina (1946, Ed. Estrada). In preparation: A text on the geography of Europe.

*Enrique BECKEDAHL. (Ing.) Professor of Geography and Mathematical Geography, Instituto de Estudios Geográficos, Universidad Nacional de Tucuman. Teaches: Astronomy of position; Astronomic geography; Elements of meteorology; Mathematical Geography; Field work in topographic surveying.

*Julio C. BOSONETTO. Chief of field work, Instituto de Estudios Geográficos, Universidad Nacional de Tucuman. Also Professor of Cartography, Economic Geography, Political Geography of Argentina in the Instituto Nacional del Profesorado Secundario, Catamarca (1948). Teaches: Astronomy of position and Astronomic Geography in Tucuman. In preparation: Localization de los 94 ingenios azucareros existentes en Tucuman en el siglo XIX.

*Pedro BRUNENGO, (Ing.). Professor of General Economic Geography, 2ª catedra, Facultad de Ciéncias Económicas, Universidad Nacional de Buenos Aires; also professor of geography in the Escuela Superior de Comercio "Carlos Pellegrini" and in the Colegio Militar de la Nacion, Buenos Aires; special adviser on hydraulics and electrical power to Direccion Nacional de la Energía. Publications: Lecciones de geografía de Europa y Oceania.

Arturo Eduardo BURKART, (Ing. Agronimo). Director, Instituto Darwinian; and professor of Botany in Facultad de Agronomia y Veterinaria, Universidad Nacional de Buenos Aires. Interest: Botany: South American legumes and classification of plants, phytogeography. Publications: Numerous articles in his field; collaborating on: "Fitogeografía de la Argentina" in "GAEA", Geografía de la Argentina, Vol. VIII.

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Angel Lulio CABRERA, (Dr. de Ciencias Naturales). Chief, Sección de Paleogeología, Museo de Ciencias Naturales, La Plata, since 1925; Professor of Paleontology, Instituto del Museo, La Plata; Professor of Natural Science (Botany) in the Universidad Nacional de la Plata; works in the Ministerio de Agricultura of the Province of Buenos Aires. Interest: Botany and paleontology. Publications: Collaborating with J. Yepes and Luciano Valetti on "Zoogeografía de la Argentina", for "GAEA" Geografía de la Argentina, Vol. VIII; collaborating with Parodi, Hauman and Burkart on "Fitogeografía de la Argentina", for "GAEA" as above; Large bibliography on phytogeography and phytosociology.

*Martin S. CAPPELLETTI, (Dr.). Sub-Director, Servicio Meteorológico Nacional, Buenos Aires.

Isidro F. CARLEVARI, (Ing.). Asst. Professor of General Economic Geography, 1st year, Facultad de Ciencias Económicas, Universidad Nacional de Buenos Aires.

Orlando Luis CARNACINI. Chief, Servicio Geográfico, Dirección General de Industria Minera. Interest: Topography and representation of physical features in cartography. Publications: Sugestiones y consejos a los joveres topografos; Has made 50,000 km^2 of reconnaissance topographic surveys and detailed surveys of over 50 mines, now working in northern Neuquen province.

*Pedro S. CASAL, (Contra-Almirante). Retired naval officer. Publications: "El litoral argentino y las islas", "GAEA", Geografía de la Argentina, Vol. III; Origenes del mar y de sus cuencas, "GAEA" Anales, Vol. VIII; "Oceanografia", "GAEA" Geografía de la Argentina, Vol. VII. Working on: Geographic place names on Argentina hydrographic charts.

*Alfredo CASTELLANOS, (Dr.). Professor of Physiography, Mineralogy and Petrography in the Facultad de Ciencias Matemáticas, Fisico-Quimicas y Naturales Universidad Nacional del Litoral, Rosario; Director, Instituto de Fisiografía y Geología, same university; Chief, Sección de Fisiografia, Geología, Paleontologia Estratográfica; Professor of Physical Geography since 1934 and Natural Science since 1927 in Escuela Industrial de Rosario, under the same Facultad as above. Interest: Anthropology, paleontology, geology.

Angel CENTARO. Chief, Cartography, Automovil Club Argentina, Buenos Aires. Interest: Cartography.

*Hector CEPPI, (Ing.). Professor of Hydraulics, Escuela Superior Técnica de Guerra, since 1945. Was in the Servicio Meteorológico Nacional. Interest: Meteorology, hydrometry, hydrology. Publications: Has published articles in Anales of "GAEA".

Fortunato L. CICHERO, (Professor). Director, Sección de Geografía, Instituto Nacional del Profesorado Secundario, Buenos Aires. Interest: Cartography, projections, mathematical geography. Publications: Geografía general - Asia y Africa, para primer ano (in collaboration with C. Corbet France); Geografía general de Europa y Oceania, para segundo ano (in collaboration with C. Corbet France); Cartografía (in collaboration with Dagnino Pastore). Working on: a series of primary and secondary geography texts.

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E. A. CLERICI. Professor of Economic Geography of Argentina, Colegio Comerical "Carlos Pellegrini", Buenos Aires. Publications: Argentina: Curso de geografía económica y humana (in collaboration with H. J. L. Barni).

Felix COLUCCIO, (Professor). Professor, Liceo Militar "San Martin", Buenos Aires. Interest: Folklore studies, human geography. Publications: Vocabulario geográfico (in collaboration with E. L. Duarte); Diccionario geológico minero; De la raza (Human geography).

Carlos CORREA AVILA, (Dr. Ciencias Naturales). Acting Professor of Economic and Political Geography of Argentina, Facultad de Humanidades y Ciencias de la Educación, Universidad Nacional de La Plata, and in Escuela de Comercio "Carlos Pellegrini".

Eugenio CORBET FRANCE. Retired professor of geography; ex-Director of the Sección de Geografía, Instituto Nacional del Profesorado Secundario. Publications: Geografía general - Asia y Africa, para primer ano; Geografía general de Europa y Oceania, para segundo ano. (Both in collaboration with Fortunato L. Cichero). Working on: a series of primary and secondary texts on geography.

*Guillermo CZAJKA, (Dr.). Professor of Anthropogeography, Instituto de Estudios Geográficos, Universidad Nacional de Tucuman.

*Lorenzo DAGNINO PASTORE, (Ing.). Professor of National Economic Geography, Facultad de Ciencias Económicas, Universidad Nacional de Buenos Aires; Professor of Economic Geography and Cartography, Instituto Nacional del Profesorado Secundario, Buenos Aires. Interest: Economic geography. Publications: Geografía (para I, II, III, IV anos); Geografía industrial argentina; Curso de Geografía economica nacional; Geografía argentina; Geografía económica (para V ano); Geografía economica y política argentina; La ciencia geográfica; El universo, la tierra y el hombre; (and a long list of articles, primarily on economic geography of Argentina.

Rafael D'ALVIA. Professor of meteorology and oceanography, Instituto Nacional del Profesorado Secundario, Buenos Aires; and Professor of Geography in Colegio Superior de Comercio "Carlos Pellegrini", Buenos Aires.

*Federico A. DAUS (Dr.). Dean, Facultad de Filosofia y Letras, Universidad Nacional de Buenos Aires and Professor of Physical Geography, same university. President, Sociedad Argentina de Estudios Geográficos "GAEA". Interest: Physical Geography. Publications: Geografía fisica de la Argentina (1943); "Morfografía general de las llanuras argentinos" in "GAEA" Geografía de la Argentina, Vol. III. Working on: Field work on physical geography and land use in the vicinity of Lago Buenos Aires, Territorio Nacional de Santa Cruz, Feb., 1950.

Martin DOELLO JURADO. Collaborating with Angel Cabrera and J. Yepes on "Zoogeografía de la Argentina" for "GAEA" Geografía de la Argentina, Vol. VIII.

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J. Francisco FOLQUER, hijo (Professor), Professor of Physical Geography, Instituto Nacional del Profesorado Secundario, Paraná. Publications: Bosquejo historico sobre el desarollo de los estudios geográficos en la Argentina (1947).

Rodolfo P. FERNANDEZ. Professor of Geography, Liceo Militar "San Martin", Buenos Aires. Publications: Trabajos practicos de geografía fisica argentina (in collaboration with Balbiani).

Ejidio FERRUGGIO (Dr.), ex-Director, Instituto de Petróleo, and ex-Professor of Geology and Petrology in the Universidad Nacional de Cuyu, Mendoza. Now living in Italy. Publications: Over 100 on geology, paleontology and physiography. Descripcion geologica de la Patagonia, 3 vols., for YPF; "Los glaciares de la cordillera argentina" in "GAEA" Geografía de la Argentina, Vol. VII; "Los sistemas orográficos de la Argentina", in "GAEA" Geografía de la Argentina, Vol. IV.

Armando de FINA (Ing. Agronomo). Professor of Climatology and Agricultural phenomenon; also Sub-director, Instituto de Suelos y Agrotecnia, in the Facultad de Agronomia, Universidad Nacional de La Plata. Publications: Difusion geográfica de cultivos indices en la mesopotamia argentina y sus causas (1948); Los Cultivos y los factores climaticos. Working on: Agricultural climatology.

*Gustavo FOCHLER HAUKE, (Dr.). Professor of Geography of the Eastern Hemisphere, Instituto de Estudios Geográficos, Universidad Nacional de Tucumán.

Honorio FOLQUER, (Dr.). Professor of History and Sanitary Geography, Escuela de Higiene, Universidad Nacional de Tucumán.

Enrique FOSSA MANCINI (Dr.). Professor and Chief of Department of Mineralogy and Petrography, Instituto del Museo, Universidad Nacional de La Plata. Interest: Geology and physical geography.

*Joaquín FRENGUELLI, (Dr. M.D.). Ex-Director of the Museo de La Plata (1935-37); ex-professor of Physical Geography andGeology, Universidad Nacional de La Plata, (1945-47); now retired. Publications: 260 publications on geology, physical geography, archaeology, paleontology, etc. ; "Las grandes unidades físicas de la República Argentina" in "GAEA" Geografía de la Argentina, Vol. III, pp. 5-114. Working on: "El Cenozoico", in "GAEA" Geografía de la Argentina, Vol. II.

Alfredo G. GALMARINI, (Ing.). Director, Servicio Meteorlógico Nacional, 1932 - Sept. 1949. Interest: Aeronautical and general meteorology.

Juan B. GANDOLFO, (Ing.). Professor. Interest: Hydrology and hydraulics. Working on: "Hidrografía continental de la Argentina", in "GAEA" Geografía de la Argentina, Vol. VII.

Miguel GARCIA FIRBEDA, (Dr.). Asst. Professor of General Economic Geography, 1st year, Facultad de Ciencias Económicas, Universidad Nacional de Buenos Aires.

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*Roberto GARCIA GACHE. Professor of Geography in Colegio Nacional de Buenos Aires, of the Universidad Nacional de Buenos Aires; in Escuela Nacional de Buenos Aires; in Escuela Superior de Comercio "Carlos Pellegrini"; and in Colegio Nacional de La Plata, of the Universidad Nacional de La Plata. Interest: Human Geography. Publications: Geografía física de la Argentina (in collaboration with Daus, 1943); Distribución de la población argentina por regiones geográficos (in Revista de Economía Argentina, June, 1945); Las comunicaciones transcordilleranas con Chile; La red ferroviaria de la Patagonia; Noticias preliminares sobre la vivienda natural en Tierra del Fuego (1949); In preparation: Field work, Feb., 1950, on la vivienda natural en los Andes Patagonicas, su vinculación con el bosque-generos de vida.

Carlos GONZALEZ. Chief, Sección Economía de la Producción, Dirección General de Pesca, Ministerio de Agricultura, Buenos Aires. Publications: La pesca y los organismos oficiales de los Estados Unidos; Codificación de estadísticas pesqueras; Projecto de codigo bromatológico para la Ciudad de Buenos Aires.

*Pablo GROEBER, (Dr.). Ex-professor of Physical Geography and Climatology, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Buenos Aires; Professor of General Geography, Instituto del Museo, Universidad Nacional de La Plata; now working with Servicio Meteorológico Nacional on geophysics. Interest: Geology. Publications: Over 50 articles and books on geology; many articles in Anales of "GAEA"; "El Mesozoico" in "GAEA" Geografía de la Argentina, Vol. II.

*Mario Francisco GRONDONA. Professor of Physical Geography of Argentina and of the Americas, Instituto Nacional del Profesorado Secundario, and in the Escuela Normal #10 "F. B. Alberdi", Buenos Aires. Working on: Field work on physical and phytogeography of the Province of San Juan in collaboration with Dr. Aridssone who is working on the human geography of the province.

Maria Teresa GRONDONA. Professor of Geography, Escuela Comercial #4, Buenos Aires. Interest: Cartography.

Luciano HAUMAN, (Ing. Agronomo). Chief, Sección Botánica, Museo Nacional de Ciéncias Naturales, Buenos Aires; ex-professor in botany and microbotany, Facultad de Agronomía y Veterinaria, Universidad Nacional de Buenos Aires. Interest: Phytogeography and systematic classification of plants. Publications: Large bibliography on botany and plant geography; Collaborating on "Fitogeografía de la Argentina" in "GAEA" Geografía de la Argentina, Vol. VIII.

Otto Hector HELBLING, (General de División). Director, Instituto Geográfico Militar, 1945 - Jan., 1950; President of Argentina's International Boundary Commissions; President of the National Section of Geography in the Pan American Institute of Geography and History; President of the Comite Nacional de Geografía, now under the Ministerio de Asuntos Tecnicos. Interest: Connected with Argentine mapping since 1912.(Army officer, retired since Jan., 1950).

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Hector V. IGLESIAS (Capitan de Corbeta). Commander of "Bahia Blanca", hydrographic survey ship, Dirección General de Navegación y Hydrogravia, Ministerio de Marina. Interest: Oceanography. Publications: An instrument for recording ultra-frequency ocean waves (Published in Review of Scientific Instruments, Nov., 1948).

Jose IMBELLONI (Dr.). Director, Museo Etnográfico, Universidad Nacional de Buenos Aires. Publications: Las realidades de la Argentina.

Artistides INCARNATO, (Dr. de Ciencias Naturales). Professor of Geography, Liceo Militar "San Martin", and Asst. Professor of General Physical Geography in the Instituto Nacional del Profesorado Secundario, Buenos Aires.

*Juan JAGSICH (Ing. Agronomo). Professor of Geodesy in Facultad de Ciéncias Exactas, Física y Naturales, Universidad de Cordoba. Interest: Topography, Cartography, Geodesy, and Agriculture hydraulics. Publications: Ha escrito mas de diez trabajos sobre temas topografia, cartografia, geodesia y astronomia; Mas extensa es la lista sobre temas de orden meteorológico, climatológico y oceanográfico publicadas en revistas especializadas como la "Revista Meteorológica" de Montevideo y en diversos periodicos como "Los Principios" de Cordoba y el diario "La Prensa" de Buenos Aires; has recently published a series of 34 articles on Meteorológica Argentina, between 1932 and 1945; Edited Meteorología Física, official text of Escuela de Aviación Militar, Vols. I and II, 1948. In preparation: Meteorología Geográfica, a text.

*Juan DEIDEL, (Dr. de Ciencias Naturales.) Dean, Facultad de Filosofía y Letras, Universidad Nacional de Buenos Aires, and ex-professor of Physical Geography, 1922-42; ex-professor of geology, Instituto del Museo, Universidad Nacional de La Plata, 1924-42; ex-chief, Sección de Geología, Dirección General de Minas, Geología e Hidro-geología, 1906-1922. Interest: Physical geography, geology and paleontology. Publications: "El Precambrico," and "El Paleozoico", in Vol. I; and "Los plegameintos precambricos y paleozoicos," in Vol. II of "GAEA" Geografía de la Argentina; Clima, desagues y aguas subterraneas de la Argentina (1948, for Universidad Nacional de Tucumán); a large number of other studies.

Alberto LOPEZ RAFFO, (Professor). Secretary of the Instituto Nacional del Profesorado Secundario; Professor of Mathematical Geography, Instituto Nacional del Profesorado Secundario; President of the Circulo de Professores de Geografía, Buenos Aires. Interest: Mathematical Geography.

*Emilio J. LLORENS, (Ing.). Asst. Professor of National Economic Geography and Professor of General Economic Geography, Facultad de Ciéncias Económicas, Universidad Nacional de Buenos Aires; Editor, Annuario Geográfico of Comite Nacional de Geografía; Member, Committee on Anales of "GAEA". Interest: Economics. Publications: 70 articles in the Revista de Economía Argentina and others. Working on chapters on "Industry" and "Internal and International Commerce" for "GAEA" Geografía de la Argentina.

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*Federico MACHATSCHECK, (Dr.). Professor of Seminar in Geography, Instituto de Estudios Geográficos, Universidad Nacional de Tucumán. Publications: Geografía de la Europa Central, 2 Vols.

Raul R. MADUENO, (Dr.). Asst. Professor of National Economic Geography, 2nd year, Facultad de Ciencias Económicas, Universidad Nacional de Buenos Aires. Publications: Regimen Forestal Argentina (Worked on the Ley Forestal).

Silvio MANGANIELLO (Ing.). Professor of Mathematical Geography and Astronomy, Facultad de Humanidades y Ciencias de la Educación, Universidad Nacional de La Plata and in Observatorio de La Plata.

Gregorio D. MARTINEZ CABRE. Professor of Physical Geography in Colegio Nacional de La Plata and in Colegio Nacional de Buenos Aires; Chief of Field Work in Geodesy, Facultad de Ciéncias Exactas, Físicas y Naturales, Universidad Nacional de Buenos Aires. Interest: Topography and geodesy. Publications: La meproformosis de la geografía monistica de Huguet del Villar; El estado actual de cartografía.

*Alejandro MATHUS HOYOS, (Dr.). Professor of General Economic Geography, 1st course, Facultad de Ciéncias Económicas, Universidad Nacional de Buenos Aires; Senator from the Province of Mendoza. Interest: Economic geography related to agriculture.

*Alberto MIGNANEGO. Professor of Human Geography, Facultad de Humanidades y Ciéncias de la Educación, Universidad Nacional de La Plata; Professor of Human Geography, Colegio Nacional de Buenos Aires and de La Plata. Publications: Articles in Anales of "GAEA": 1) La carta isocrona de La Plata y alrededores; 2) Ensayo de antropogeografía: el pueblo en formación: Manuel B. Gonnet; 3) Geografía comercial argentina-uruguaya: Intercambio agropecuaria.

Alberto Carlos MUELLO (Ing.). Asst. Professor of National Economic Geography, 2nd year, Facultad de Ciéncias Económicas, Universidad Nacional de Buenos Aires; and also Professor of Agricultural Economics. Interest: Agriculture. Publications: Geografía económica del Chaco y Formosa; Geografía económica del territorio de Santa Cruz; Misiones: Descripción geográfica; condiciones agricolas y económicas del territorio; su yerba mate y las cataratas del Iguazú.

Juan Jose NAGERA (Dr.). Professor, Instituto del Museo, Universidad de La Plata. Publications: Atlas de la República Argentina, E. 1:2,200,000, trabajo patrocinado por la Sociedad Arg. de Est. Geográficos "GAEA", Buenos Aires (1926); Perfil geográfico (1927); Mar libre, Doctrina, en "Humanidades", Vol. XIV, (1927); Proyecto de fundación del Consejo Nacional de Immigración, en Servir, Ano I, No. 8, Buenos Aires (1936); Proyectos de parques naturales provinciales; Atlas de Entre Rios, Buenos Aires (1928); Mapa Hidrográfico-político de la República Argentina, Escala 1:5,000,000, Buenos Aires (1931); is author of various topographic maps; Geografía Física de las Americas y de la Argentina (in collaboration);

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is author of numerous works on geology, published in los Anales and Boletines de la Dirección de Minas y Geología del Ministerio de Agricultura de la Nacion.

Alfredo ONETO. Professor of Human Geography and Phytogeography in the Colegio Nacional de Buenos Aires and in the Instituto Nacional del Profesorado Secundario, Buenos Aires; Professor in Escuela Superior de Comercio "Carlos Pellegrini", Buenos Aires.

Anibal J. ORTIZ, (Ing.). Professor of Meteorology and Agricultural Climatology, Facultad de Agronomia y Veterinario, Universidad Nacional de Buenos Aires. Interest: Meteorology and Drafting.

Ana PALLESSE de TORRES (Professor). Professor of Physical Geography in the Instituto Nacional del Profesorado Secundario, Buenos Aires. Interest: glaciology and physical geography. Publications: Algunas observaciones geográficos en el valle de Belen, in "GAEA" Anales, VIII, 1948. Working on: Section on Rivers for "GAEA" Geografía de la Argentina. Doing field work in Patagonia.

Clovis A. M. PAREL. Professor of Geography, Colegio Nacional #9, Buenos Aires; Also cartographic reviewer for the Instituto Geografico Militar.

*Lorenzo R. PARODI (Ing.). Professor of Plant Physiology and Phytogeography, Facultad de Agronomía y Veterinaria, Universidad Nacional de Buenos Aires. Interest: Botany and phytogeography. Publications: Numerous publications on botany and plant geography; Collaborating with Hauman, Burkart and Carrera on "Fitogeografía de la Argentina", for "GAEA" Geografía de la Argentina, Vol. VIII.

*Martin PEREZ (Dr.). Director, Sección de Geografía, Facultad de Filosofía y Letras, Universidad Nacional de Cuyo, Mendoza; Professor of Human and Economic geography, same. Field work in south Mendoza with students.

Leon PICARD. Chief, Division of Cartography, Dirección General de Navegación y Hydrografía, Ministerio de Marina, Buenos Aires. Interest: Cartography.

Alfredo Cesar RAMPA. Professor of Geography, Liceo Militar "General San Martin", and in Escuela de Comercio "Carlos Pellegrini", Buenos Aires. Publications: Curso de Geografía Americana, III Ano (with Soto-Hall, M.); Equipo para trabajos practicos de la geografía de America; Viaje a Culampaja: Hidrografía regional (in "GAEA" Anales, VIII, 1948). In preparation: Geografía de la America y la Argentina.

Emilio REBUELTO, (Ing.). Professor of Economic Geography and Sources of Natural Wealth, Facultad de Ciéncias Exactas, Físicas y Naturales, Universidad Nacional de Buenos Aires.

*Luis G. REPETTO. Professor of National Economic Geography, 2nd course, Facultad de Ciéncias Económicas, Universidad Nacional de Buenos Aires; Advisor (with M. Hoyos) to Comisión de Agricultura, Senate. Vice-President, Congreso Nacional de Pesquerias, Mar del Plata, 1949. Publications: Geografía general y de Asia y Africa (with A. Tagle);

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Geografía de Europa y Oceania (with A. Tagle); Worked on Ley Forestal.

Maria A. REYNAUD. Chief Asst., Field Course, Instituto de Estudios Geográficos, Universidad Nacional de Tucuman. In preparation: Comparación entre el paisaje cultural ingles y aleman.

Teodoro R. RICCI. Professor of Astronomy and Astronomic Geography, and Chief of Field Course, Escuela de Geografía, Universidad Nacional de Tucumán. In preparation: Mapa de los tipos de suelos de Tucumán; Reconstrucción del paisaje natural de Ibatin and de La Toma, siglos XVI y XVII.

Agostin Eduardo RIGGI. Director, Museo de Ciéncias Naturales, La Plata; Professor, Facultad de Ciéncias Económicas, Universidad Nacional de La Plata. Interest: Geology and Physical Geography.

Nicasio RIVERO. Instructor of Mathematical and Physical Geography, Instituto de Educación, Universidad Nacional de Tucumán.

ROBLES MENDELAHARAZU (Ing.). Professor of Topography, Instituto de Geodesia y Topografía, Universidad Nacional de Tucumán. Publications: Acceso a los valles calchaquies.

*Guillermo ROHMEDER, (Dr.). Director, Instituto de Estudios Geográficos, Facultad de Filosofia y Letras, Universidad Nacional de Tucumán; Professor of Reading and Interpretation of Maps, of Geography of the Americas, same. Interest: Geomorphology, glaciology, antropogeography. Publications: Corografía de la República Argentina (Thesis - 1938); Estudio fitogeográfica de la tierra de Tucumán (1943); Bosquejo fisiogegoráfico de Tucumán (1945); Introducción a la geografia de la Argentina (2nd ed. 1943); Bibliografía geográfica de Tucumán (with Sra. de Santamarina); Investigación fitoestadística en un erial patagonico (in "GAEA" Anales, VIII, 1948.) In preparation: Doing field work for a publication on the Physiogeography of the Valley of Tafi.

Jose Domingo RUGGIERI, (Ing.). Chief, Division of Photogrammetry, Dirección General de Navegación e Hidrografía. Interest: Specialist in hydrography and photogrammetry.

Ciriaco SAINT-GERMES. Chief, Division of Cartography, Yacimientos Petroliferas Fiscales. (Govt. Oil Co.) Interest: Cartography.

Luis SALMOIRAGHI. Chief, Department of Cartography, Peuser, S. A., Buenos Aires. (Private publishing firm). Interest: Cartography.

Estela T. Barbieri de SANTAMARINA, (Senora). Professor (Asst.) of Geography of Argentina, Universidad Nacional de Tucumán. Publications: Los perfiles causales en la ensenanza de la geografía (1949); Bibliografía geográfica de Tucumán (with Rohmeder); Notas a la antropogeografía del Valle del Tafi (In "GAEA" Anales, VIII, 1948); In preparation: Conclusiones del congreso de geografía reunido en Bolonia, 1937.

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Jose F. SANTI. Professor of Economic Geography, 2nd course, Facultad de Ciencias Económicas, Comerciales y Políticas, Universidad Nacional del Litoral, Rosario.

*Guillermo SCHULTZ, (Dr.). Director, Instituto de Geodesía y Topografía, Universidad Nacional de Tucumán; Professor, same. Publications: La precision de mapas compilados: un capitulo de la historia cartográfica del territorio argentino; Lecture, Nov., 1949: Future of Cartography based on photogrammetry and electronic procedures. Gave a special course in photogrammetry, summer, 1949-50, Universidad Nacional de Tucumán.

Ramon M. SEOANE, (Dr.). Professor of Economic Geography, Instituto de Economía, Universidad Nacional de Tucumán; Acting Director of the Institute, 1948. Publications: Geografía económica de Tucumán; Vias de comunicación en la República Argentina; Explotación forestal en la República Argentina; La población en la República Argentina.

Pascual SGROSSO, (Dr.). Professor of Cartography and Topography, Instituto del Museo, Universidad Nacional de La Plata. Interest: Geology and Physical Geography.

Vicente TAU (Dr.). Professor of Plant Ecology, Facultad de Ciéncias Naturales, Universidad Nacional de La Plata and in Colegio Nacional de La Plata. Publications: Geografía astronómica; Biogeografía (Fito-zoo y antropogeografía).

Gaston Federico TOBAL. Lawyer; retired professor of Geography in the Escuela Superior de Comercio "Carlos Pellegrini", Buenos Aires. Publications: Lecciones de geografía argentina (revised annually, now in 17th edition); Lecciones de geografía económica. Working on: Revision of texts.

Ramon VASQUEZ. Professor of History of Geography, Instituto Nacional del Profesorado, Buenos Aires; Professor of Geography of Europe, Colegio Nacional de Buenos Aires and in the Escuela Superior de Comercio "Carlos Pellegrini", Buenos Aires.

Luis T. de VILLALOBOS, (Capitan de Corbete). Chief, Division of Hydrography, Dirección General de Navegación y Hidrografía, Ministerio de Marina, Buenos Aires. Interest: Hydrography and cartography.

*Alberto VULETIN. Cartographer, Yacimientos Petroliferas Fiscales (Govt. Oil Co.); and private researcher on geographic place names. Publications: Algunos toponimos misteriosos de la Provincia de Salta (1947); Rios enganosos (1947); Factores negativos en la toponimia argentina; Una curiosa noticia sobre el petróleo argentina; Toponomástico del Neuquen (Book). In preparation: Place names of Argentina in general, of Chaco and Formosa in particular.

J. YEPES, (Dr. de Ciencias Naturales). Professor of Natural Science, Facultad de Ciéncias Exactas, Físicas y Naturales, Universidad Nacional de Buenos Aires; Founder of and Director, Revista Zoogeografica Argentina. Publications: Mamiferos sudamericanos (in collaboration with A. Cabrera); Collaborating with Angel Cabrera on "Zoogeografía de la Argentina" for "GAEA" Geografía de la Argentina, Vol. VIII.

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GOVERNMENT AGENCIES - RESEARCH PROGRAMS (GENERALIZED)

Government agencies in Argentina may use the term "geography" in their titles but usually employ no trained geographers other than in a cartographic capacity. The following agencies are listed as doing some phase of geographical research:

1. Instituto Geográfico Militar, Ministerio de Guerra
   (Military Geographic Institute, Ministry of War)
   Address: Av. Cabildo 381, Buenos Aires
   Director General: Colonel Levene

The IGM is surveying and mapping Argentina on scales of 25,000, 50,000 100,000 and 500,000, and produces also general maps of the country and provinces. It has charge of defining the inter-provincial boundaries, and surveying along the inter-national boundaries. The Institute has divisions of Geodesy, Topographic Surveys, Calculations (Geodetic), and Cartography. They have a reference library and a map library of some 30,000 items, mostly on Argentina, which is not available to the general public and special permission would have to be obtained for its use. Maps published by IGM are on sale in its Sección de Ventas, Av. Huergo 251, Buenos Aires.

2. Comite Nacional de Geografía
   (National Committee on Geography)
   Address: Av. Cabildo 381, Buenos Aires
   President: General de División Otto H. Helbling

CNG is the successor to the old Instituto Geográfico Argentino and is composed of all members of government geographic and mapping agencies, and private scientific institutions interested in geography. It has been organized under the Ministry of War but in the past year has been transferred to the Secretariat of Technical Affairs, thus being now under civil control. CNG is the adhering agency of Argentina to the International Geographical Union. An Anuario Geográfico Argentino, 1941 and a supplementary volume in 1942 have been published by the agency. The Comite has been increasingly inactive since then and may shortly be replaced by a "Consejo Nacional de Geografía", a bill for which has been passed by the Argentine Senate and is now awaiting action in the Chamber of Deputies.

3. Dirección General de Industria Minera, Ministerio de Industria y Comercio (General Bureau of Mining Industry, Ministry of Industry and Commerce)
   Address: Perú 562 and Paseo Colon 751, Buenos Aires
   Director General: Dr. Perfecto José Sanchez

The DGIM is making topographic and geological maps of Argentina at the scale of 1:200,000. It has a Servicio Geográfico which includes sections on Topography and Cartography. Most of the information published by the agency is economic and physical geology of Argentina. There is a map library of about 5,000 maps and a fairly good geological reference library. The reference library is available to the general public. The map library might be used with special permission. Maps and publications of the agency may be obtained by exchange or by purchase from the library.

4. Instituto de Suelos y Agrotecnia, Ministerio de Agricultura
   (Institute of Soils and Agrotechnology, Min. of Agriculture)

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Address: Cervino 3101, Buenos Aires
Director ad honorem: Dr. Vaino Auer

The Institute of Soils is making a soil conservation and reclamation and other allied studies, and some large scale soils maps in selected regions with soils profiles. Studies of the chemistry of soils collected in various parts of Argentina are also being made. They have a small map library and a selected reference library, which are not open to the general public, but which might possibly be used with special permission.

5. Servicio Meteorológico Nacional, Ministerio de Aeronáutica
(National Meteorological Service, Ministry of Aeronautics)
Address: Paseo Colon 317, Buenos Aires
Interventor: Comodoro Edmundo Hugo Civati Bernasconi

The Servicio is producing a daily weather map for general distribution. Special studies on weather for the Ministry of Aeronautics are made. The agency produces a climatological bulletin with records going back to the 1920's. There are some 3,000 weather stations in Argentina reporting almost daily. Special studies on air masses, various phases of hydrology and geophysics are also being made. SMN has a small map library and a specialized reference library, not generally available to the public.

6. Dirección General de Navegación y Hidrografía, Min. de Marina
(General Bureau of Navigation and Hydrography, Min. of Navy)
Address: Lavalle 1634, Buenos Aires
Director General: Capitan de Navio Juan Basso (Dec. 27, 1949)

The DGNH is somewhat similar to our Coast and Geodetic Survey in the U. S. It surveys for and produces hydrographic charts of the Argentine coast and territorial waters. Tide guages and meteorlogical stations have been set up along the coast and on the island. Two weather ships are maintained in Antartic waters most of the year. DGNH produces its own weather maps, some meteorological publications and a pilot's guide. It also makes oceanographic studies. A small chart library and a small reference library are not available to the general public.

7. División de Limites, Ministerio de Relaciones Exteriores
(Boundary Division, Ministry of Foreign Relations)
Address: Arenales 761, Buenos Aires
Chief: Ing. Norberto Cobos

The Divisíon de Limites has surveyed, monumented and mapped most of the international boundaries of the country, usually in cooperation with the Instituto Geográfico Militar. It has published little and no maps are available. There is a selected reference library, not open to the public. Other offices of the Min. of Foreign Relations have published studies or propaganda on the Argentine claims to the Antarctica. The Ministry has a good reference library not generally available to the public.

8. Dirección Nacional de Investigaciones Estadísticas y Censos, Ministerio de Interior (National Bureau of Statistical and Census Investigations, Ministry of Interior)
Address: Av. Alvear 3164, Buenos Aires
Director General: Ing. Vicente F. Ottavo

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The DNIEC is making studies on the results of the 1947 census. No statistical information has been published for some time and none is available to the general public. A card file of place names of Argentina is maintained.

9. Administración General de Parques Nacionales y Turismo, Ministerio de Agricultura (General Administration of National Parks and Turism, Ministry of Agriculture)
   Address: Sante Fe 690, Buenos Aires
   Administrator: Col. (R.) Napoleon Argentino Irusta

The Administration produces few maps, but considerable tourist propaganda on the national parks and Argentina in general. The small map and reference libraries are not generally available, but might be used with special permission. The agency is making some attempts to conserve national forests by establishing parks and monuments.

10. Dirección Forestal, Ministerio de Agricultura
    (Bureau of Forestry, Ministry of Agriculture)
    Address: Azcuenaga 1344, Buenos Aires
    Director:

The Dirección Forestal is making studies on existing forests, their conservation and reforestation, on the uses of forests and wood products and the suitability of various woods for industrial uses.

11. Administración General de Vialidad Nacional, Ministerio de Transportes
    (General Administration of National Highways, Ministry of Transport)
    Address: San Martin 871, Buenos Aires
    Administrador General: Ing. Carlos J. Alonso

The DGVN is making studies on projected roads and a few maps are made in connection with them. It has published a general road map of the country, but the cartographic section is almost abolished at present.

12. Dirección General de Economía Agropecuaria y Coordinación, Ministerio de Agricultura (General Bureau of Agricultural Crop Economy and Coordination)
    Address: Paseo Colon 974, Buenos Aires
    Director General: Dr. Alberto Astort

The DGEAC is making studies from the 1947 census and field work on crops, crop diseases, and on areas suitable for agricultural development.

13. Instituto Etnico Nacional
    (National Eghnic Institute)
    Address: Darsena Norte, Buenos Aires
    Director: Dr. Salvador Canals Frau

The Instituto is studying problems related to immigrants and their assimilation and acclimatization, anthropology of Indian tribes, and the territorial potential of Argentina with regard to demography.

14. Secretaría de Salud Pública de la Nación
    (Secretariat of Public Health of the Nation)
    Address: Paseo Colon 367, Buenos Aires

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The SSP is making studies related to medical geography such as sanitary constructions, climate, mineral waters, epidemology and endemic diseases, sanitary entomology, allergies, etc. It also has an Oficina de Demografía Sanitaria under the Direction of Dr. Cecilio Morales.

15. Administración General de Obras Sanitarias de la Nacion, Ministerio de Obras Públicas (Administration General of Sanitary Works of the Nation, Ministry of Public Works)
Address: Buenos Aires

This agency makes studies on the improvement and enlargement of potable water systems, sewers and storm drains. Studies on the capacity of sub-surface formations and the movement of water in La Rioja have been made, as well as others on geological reconnaissance and on population birth and death rates. Some cartographic work is done in conjunction with these studies.

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Other government agencies of possible interest in some specialized geographic research are listed below:

Dirección de Estudios y Obras del Riachuelo
Dirección de Política Comercial
Dirección de Vegetales y Derivados
Dirección de Vitivinicultura
Dirección de Yerba Mate
Dirección General de Combustibles Solidos Minerales
Dirección Nacional de Navegación y Puertos
División de Agua y Energia Electrica
Yacimientos Petroliferas Fiscales

Various provincial and municipal agencies should also be considered in connection with regional geographic studies on Argentina; for example, the provincial "Turismo" Departments often publish propaganda pamphlets that contain much descriptive material.

GEOGRAPHIC SOCIETIES AND OTHER PRIVATE ORGANIZATIONS

Geographic societies, as such, are not numerous in Argentina. Only four private societies are known to exist. These are: 1) Sociedad Argentina de Estudios Geográficos "GAEA" in Buenos Aires and its newly established (1949) branch in Tucumán (the national professional geographic society); 2) the Sociedad Geográfica Americana, in Buenos Aires (somewhat similar to the National Geographic Society; 3) the Sociedad Geográfica e Historica de Cuyo, in Mendoza; and 4) the Circulo de Profesores de Geografía, in Buenos Aires. The active membership in each is small and only the first two, both older, have any regular publications.

Other private organizations with interest or work in geography are the Automovil Club Argentina, the Instituto Agrario Argentino, the Sociedad Científica Argentina, and the Sociedad Argentina de Ciencias Naturales "Physics". There may be others doing some geographical studies but no information is available, other than names and addresses of the most likely. Some detail of each society mentioned specifically above is given below:

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1. Sociedad Argentina de Estudios Geográficos "GAEA"
(Argentine Society of Geographic Studies "GAEA"
Address: Av. Santa Fe 1145, Buenos Aires
President: Dr. Federico Daus
Secretary General: Prof. Herberto A. Balbiani

"GAEA" is the only truly professional geographic society in Argentina. It has been active since 1922 and has recently established a branch in Tucuman (1949). The Society publishes a yearbook quite regularly, and is now engaged in publishing a fourteen volume work on the physical and human geography of Argentina, of which five volumes are available at present. These are:

Vol. I ---- Resumen historico-geográfico; El Precambrico El Paleozoico.
Vol. III -- Las Grandes unidades físicas del territorio argentina; Morfografía general de las llanuras argentinas; El Litoral Argentino y las islas.
Vol. IV --- Las sistemas orográficos de la Argentina.
Vol. V ---- Clima de la República Argentina.
Vol. VI --- Clima de la República Argentina.

"GAEA" has also published a bulletin irregularly.

Membership in the society is about 250, of which probably half are geography teachers in the universities and secondary schools. Regular monthly meetings are conducted. The reference library contains about a thousand volumes and is open to the public. There is a small map library also. An annual geographic week has been fostered, with papers, discussions and field trips. In 1936 the first (and only) national conference on cartographic coordination was sponsored and a volume was published in 1937 containing all the papers and minutes of the meetings. "GAEA" is interested in exchanging material with societies, universidies and individuals.

2. Sociedad Geográfica Americana
(American Geographic Society)
Address: San Juan 738, Buenos Aires
President: José Anesi

The Sociedad Geográfica Americana, founded in 1939, is the Argentine equivalent to the National Geographic Society in the United States. It has some 250 "shareholders" and over a thousand other members all inactive who receive the monthly "Revista Geográfica Americana". This magazine has been published continuously since 1933, even before the Society was officially founded. SGA also publishes a small set of books on travel and expeditions in Latin America. It is a private enterprise and has a reference library that belongs to Mr. Anesi.

3. Circulo de Profesores de Geografía
(Circle of Professors of Geography)
Address: Calle Jose Hernandez 2247, Buenos Aires
%Instituto Nacional del Profesorado Secundario
President: Prof. Alberto Lopez Raffo

The Circulo functions principally as a union of geography professors graduated from the Instituto Nacional del Profesorado Secundario to defend their interests and to promote better teaching. It was founded in 1942 and and now has over 300 members, only about twenty of which are active in

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geographical research and publications. Three numbers of the Boletín have been published to date and a fourth is in preparation. Other publications are mimeographed notes (apuntes) for use of professors and students. Conferences, movies and a field trip to northern Argentina are planned for 1950.

4. Sociedad Geográfica e Historica de Cuyo (?)
(Geographical and Historical Society of Cuyo)
Address: % Universidad Nacional de Cuyo, Mendoza
President: Prof. Martin Perez

No data is available on this organization at present.

5. Automovil Club Argentina
(Automobile Club of Argentina)
Address: Av. Alvear 750, Buenos Aires
President: Carlos Anesi

The Automovil Club produces road maps and a series of tourist guide books on the various regions of Argentina, per example: "Guia de Viaje" - Nordeste", with extensive maps, climatic data, photographs, list of places and geographical information of interest to tourists. They have a reference library open to the public and a map library which might be used with special permission.

6. Instituto Agrario Argentino
(Agrarian Institute of Argentina)
Address: Moreno 711, Buenos Aires
President: Dr. Cornelio J. Viera

The Instituto Agrario was founded in recent years in connection with the government's "Pro-rural culture" program, and its primary purpose has been to further the interests of the agriculturists in the country by wide-spread publicity on modern agrarian methods and discussions of the problems of farmers in the various rural areas. The Instituto publishes a series of monographs on selected districts (counties) on the agricultural (especially cattle-raising) zones of Argentina. Some geographic data and a considerable volume of historical information is included in these studies. There is a small reference library open to the public.

7. Sociedad Científica Argentina
(Argentine Scientific Society)
Address: Santa Fe 1145, Buenos Aires

The Sociedad Científica was founded in Buenos Aires in 1872 for the purpose of promoting and protecting the scientific movement in Argentina and of fostering the study of the mathematical, physical and natural sciences. Since its founding more than 100 volumes of a scientific nature, among them geographical studies, have been published.

8. Sociedad Argentina de Ciencias Naturales "Physis".
(Argentine Society of Natural Sciences, "Physis")
Address: % Instituto Darwinian, San Isidro, Province of Buenos Aires
President: Ing. Agron. Arthur Burkart

"Physis was founded about 1915. In 1916, the I Congreso Argentino de Ciencias Naturales was sponsored in Tucuman, and a large volume on the proceedings was published. In 1937 the II Congreso was held in Mendoza. The

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magazine of the society, "Physis" is published yearly and often contains geographical studies and papers. The Society has a fine library on botany based on an original collection donated by Cristobal Hecken.

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Some of the work and publications of the following societies may be of interest in specialized geographical subjects:

Asociacion Argentina de Agrimensores e Ingenieros Agronomos.
Address: Arenales 1415, Buenos Aires.
Asociación Geológica Argentina de Buenos Aires (Publish a Revista)
Address: Ituzaingo 1060, Buenos Aires.
Centro Argentino de Ingenieros
Address: Cerrito 1250, Buenos Aires.
Centro Argentino de Ingenieros Agronomos
Arenales 1678, Buenos Aires.
Centro Azucareros Argentinos
Address: Reconquista 336, Buenos Aires.
Centro de Estudiantes de Ciéncias Naturales
Address: Calle Perú 220, Buenos Aires.
Centro Naval
Address: Florida 801, Buenos Aires
Circulo Militar
Address: Santa Fe 750, Buenos Aires
Instituto Alejandro E. Bunge de Investigaciones Económicas y Sociales
(Publish the Revista Economía Argentina)
Address: Calle Virrey Cevallos 592, Buenos Aires.
Liga Naval
Address: Cordoba 653, Buenos Aires.
Sociedad Argentina de Antropología
Address: Av. Santa Fe 1145, 4th floor, Buenos Aires.
Sociedad Argentina de Mineria y Geología de Buenos Aires
(Publish the Revista Minera, Geología y Mineralogía).
Sociedad Argentina de Zoogeografía
Address: Av. Directorio 2980, Buenos Aires.
Sociedad Americantists de Argentina
Address: Libraria Zero, Facuari 12, Buenos Aires.
Sociedad Rural Argentina
Address: Florida 460, Buenos Aires.

GEOGRAPHY AS AN ACADEMIC SUBJECT IN SCHOOLS

Geography is taught in all seven of the primary grades and in five secondary grades. All work is in accordance with programs laid down by the Ministry of Education. The national program for the secondary level call for:
1st year - General Geography, Geography of Asia and Africa
2nd year - Geography of Europe and Oceania
3rd year - Geography of the Americas and Argentina in particular
4th year - Physical Geography of Argentina
5th year - Economic Geography of Argentina

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"Professors of Science" and "Professors of Letters" are graduated from the Normal Teachers Schools after a three year general course, following graduation from secondary schools. These professors are permitted to teach anything, including geography, which might fall under the heading of science or letters.

"Professors of Geography" are graduated from the National Institutes of Secondary Professors after a four year course in which they take about 14 different geography courses: Mathematical Geography, 2; Cartography, 2; Physical Geography of the Americas, 1; General Physical Geography, 2; Physical Geography of Argentina, 1; General Economic Geography, 1; Economic Geography of Argentina, 1; Geology and Mineralogy, 1; Biogeography, 1; Anthropogeography, 1 or 2; Teaching of Geography, 1.

Graduates of the Schools of Philosophy and Letters in each of the national universities, with the degree of "Doctor" in Philosophy or Letters after a five year course, are permitted to teach geography although their geographical studies, except in the Universidad de Tucuman, may be restricted to four courses: General Physical Geography, General Human Geography, Physical Geography of Argentina and Human Geography of Argentina.

No university in Argentina offers as yet post-graduate work in Geography, but Tucuman is contemplating doing so shortly.

There are three National Institutes of Secondary Teachers (Buenos Aires, Parana, Catamarca) and six national universities (Buenos Aires, La Plata, Tucuman, Cordoba, Cuyo - in Mendoza, and Litoral - in Santa Fe and Rosario). All universities offer some geographical work in the Schools of "Philosophy and Letters", "Exact, Physical and Natural Sciences", "Agriculture" and/or "Economic and Political Sciences".

The following is a list of the universities of Argentina with their offerings in geography and allied fields:

<u>Universidad de Buenos Aires</u>

Facultad de Filosofía y Letras (School of Philosophy and Letters)
- Geografía humana (Human Geography)
- Geografía fisico (Physical Geography)

Instituto de Geografía (Institute of Geography)
- Sección de Antropogeografía (Anthropogeography Section)
- Sección de Geografía física (Physical Geography Section)

Facultad de Ciéncias Exactas, Físicas y Naturales (School of Exact, Physical and Natural Sciences)
- Geografía económica y fuentes de riqueza natural (Economic geography and sources of natural wealth)
- Geografía física y climatología (Physical Geography and Climatology)

Facultad de Agronomia y Veterinaria (School of Agronomy and Animal Husbandry)
- Meteorología y climatología agricola (Meteorology and agricultural climatology)
- Fisiología Vegetal y fitogeografía (Plant Physiology and phytogeography)

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Facultad de Ciéncias Económicas (School of Economic Sciences)
Geografía económica general (General economic geography) 2 courses.
Geografía económica nacional (National economic geography) 2 courses

Universidad Nacional de La Plata

Facultad de Humanidades y Ciéncias de la Educacíon (School of Humanities and Educational Science)
Geografía matemática (Mathematical Geography)
Geografía humana (Human Geography)
Geografía económica y política argentina (Economic and political geography of Argentina)

Facultad de Agronomía (School of Agronomy)
Climatología y fenomenología agricolas (Climatology and agricultural phenomenology)
Agrología y complementos de mineralogia y geología (Agrology and related fields of mineralogy and geology)

Instituto del Museo (Institute of the Museum)
Cartografía y topografía (Cartography and topography)
Geografía física (Physical Geography)
Mineralogía y petrografía (Minerology andpetrography)

Universidad Nacional del Litoral

Facultad de Ciéncias Económicas, Comerciales y Políticas (Rosario) (School of Economic, Commercial and Political Sciences)
Geografía económica (Economic Geography) 2 courses

Facultad de Ciéncias Matemáticas, Fisio-Quimicos y Naturales, aplicadas a la Industria (School of Mathematical, Physical-Chemical and Natural Sciences applied to Industry) Rosario
Fisiografía, Mineralogía y petrografía (Physiography, Mineralogy and Petrography)

Instituto de Fisiografía y Geología (Institute of Physiography and Geology)
Sección Petrografía y Optica Mineral (Petrographic and Mineral Optics Section)
Sección Fisiografía, Geología, y Paleotología Estratigráfica (Physiography, Geology and Stratigraphic Paleontology Section)

Facultad de Higiene y Medicina Prevetitiva (School of Hygiene and preventive Medicine) In Santa Fe
Geografía Sanitaria (Sanitary Geography)

Universidad Nacional de Cordoba (Information not complete)

Escuela de Ciéncias Económicas (School of Economic Sciences)
Instituto de Estadística (Institute of Statistics)
Instituto de Investigaciones Económicas (Institute of Economic Research)
(A Revista de Economía y Estadística is published)

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Universidad Nacional de Cuyo, Mendoza (Information not complete)

Facultad Mendocina de Filosofía y Letras (School of Philosophy and Letters)
Instituto de Historia y Disciplina Ausiliares (Institute of History and Allied Subjects)
Sección de Estudios Geográficos (Geographic Studies Section)
Instituto de Estudios Económicos (Institute of Economic Studies)
Instituto de Petróleo (Petroleum Institute)

(The University publishes the "Anales del Instituto de Etnología Americana", and recently began the publication of the "Boletín de Estudios Geográficos".)

Universidad Nacional de Tucumán

Instituto de Estudios Geográficos (Institute of Geographic Studies)
Geografía de la Argentina (Geography of Argentina)
Geografía del Hemisferio Oriental (Geography of the Eastern Hemisphere)
Antropogeografía (Anthropogeography)
Geografía física y matemática (Physical and Mathematical Geography)
Seminario de Geografía (Seminar in Geography)
Trabajos Practicos (Field Courses)

Escuela de Geografía (School of Geography)
*(For students of teaching of history and geography)
**(For students for the degree (licenciatura) in Geography)
*Geografía del Brasil y del Canada (Geography of Brazil and Canada)
*Geografía de la Pampa Argentina (Geography of the Argentine Pampa)
*Geografía general de la Argentina (General Geography of Argentina)
**Lectura y interpretación de mapas geográficas (Reading and Interpretation of Geographic Maps)
**Astronomía de posición y geografía astronómica (Astronomy of position and astronomic geography)
**Elementos de meteorología (Elements of Meteorology)
**Geografía matemática (Mathematical Geography)
**Practica de relevamiento topográfico (Field topographic surveying)

Instituto de Geodesía y Topografía (Institute of Geodesy and Topography)
Topografía (Topography)
Geodesía (Geodesy)
Trabajos Prácticos (Field Courses)

Instituto de Geología y Mineria (Institute of Geology and Mining)
Sección de Geología (Geology Section)
Sub-Sección de Paleotología (Sub-Section of Paleontology)
Museo Geológico (Geological Museum)
Sección de Mineria y Metalurgica (Mining and Metalurgical Section)
Sub-Sección de Yacimentos Minerales (Sub-Section of Mineral Resources)
Sub-Sección de Ensayo de Minerales (Sub-Section of Mineral Assays)

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Laboratorio Metalográfico (Metalurgical Laboratory)
Taller Mecanico de Maquinaria Mineria (Mechanical Repair Shop of Mining Machinery)
Sección de Minas Experimentales (Section of Experimental Mines)

Other allied fields of possible interest to geographers in the University of Tucuman are:

Instituto de Hidráulica
Instituto de Vias de Comunicación
Instituto de Arquitectura y Urbanismo
Instituto de Investigaciones Estadísticas
Instituto de Economía
Instituto de Antropología
Instituto de Sociografía y planeación
Instituto de Investigaciones Azucareras
Instituto de Medicina Regional
Instituto de Tecnológico de Bosques y Maderas
Instituto de Fitopatología
Gabinete de Etnología y Biología
Fundación Miguel Lillo (for the study of biology, zoology, entomology, etc.)

URUGUAY[4]

URUGUAYAN GEOGRAPHERS AND THEIR RESEARCH PROGRAMS

Trained geographers and persons active in geographical research and field work in Uruguay are few in number. Although over 300 individuals are listed as members of the three geographical societies, less than one-tenth are considered to be active, producing geographers. The majority of this small group are officials in government offices where some phase of geographical or related work is in progress and/or who are teachers of geographical sciences in secondary and higher educational institutions.

Almost no foreign geographers have worked in Uruguay and none are at work there now. However, the influence of the writings of de Martonne, Brunhes, Vidal de la Blache, Desfontainnes, and others, has been strong. Uruguayan geographers, none of whom have had formal training in the subject since their secondary school days, are all self-trained and surprisingly well read. It should be mentioned that the outstanding geographer in Uruguay today, by virtue of his personal drive, range of professional activities and capacity and his geographical publications, is Prof. Jorge Chebataroff and that Prof. Horacio Ureta Martinez has made a noteworthy contribution to Uruguayan geography in the field of cartography for teaching purposes.

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4. This section of the report was prepared by Mr. Arthur P. Biggs, Geographic Attache of the United States Foreign Service, who wishes to express his gratitude for assistance given him by Professor Jorge Chebataroff and Professor Horacio Ureta Martinez.

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The following list is comprised of those persons in Uruguay who are most active in geographical work or related professional research:

Contra-Almirante Alfredo AGUIAR. Position: Inspector General de la Marina, Ministerio de Defensa. Special Interests: Hydrography. Publications: Official reports.

Ing. Agron. Jorge ALVAREZ. Position: Director, Sección de Investigaciones Geológicicas, Instituto de Estudios Superiores. Special Interests: Historical geology and soils. Publications. Apuntes y notas sobre Una nomenclatura paia los suelos del Uruguay, basada en la geologia-con referencia especial a los departamentos de Paysandú, Rio Negro, Artiga, Salto y Rivera, 1945.

Prof. Luis P. BARATTINI. Position: Director, Museo Oceanográfico, Servicio Oceanográfico y de Pesca, Min. de Defensa Nacional, and professor of zoology and geography in secondary schools. Special interests: Zoology and biography. Publications: La sub familia Cicindelidae en el Uruguay; La biologia en un problema de la geofísica; Los equinodermos uruguayos; La fauna del Río de la Plata; Los problemas de la pesca en el Uruguay. Program: Uruguayan molluscs; the seals in waters of Río de la Plata.

Cnel. Alfredo BERGALLI. Position: Director, Servicio Geográfico Militar, Estade Mayn General del Epércite, Ministerio de Defensa. Special interest: Topography, geography, cartography. Publications: Geografía militar (Revista Militar y Naval, 1939); Nacientes de cursos de aguas (Boletín No. 4, Servicio Geog. Mil. 1945); and other geographic studies in INIG Boletín Nos. 6,9,12,16,26,27. Program: Completely occupied in official reports and work; directing surveys, compiling and drafting of 1:50,000 topographic sheets of map of Uruguay.

José Maria BERGEIRO. Position: Director, Sección de Investigaciones Meteorológicas and professor of general climatology and climate of Uruguay, Instituto de Estudios Superiores. Special interest: Meteorology. Publications: Conjecturas relativas a los problemas de la bio-climatologia, Nardaledad de la temperature en Montevideo (in collaboration with Anibal Ribeiro Reissig); La Temperatura y la lluvia estacional en el Uruguay; las sensaciones biotérmieas; Importancia de las observaciones referentes a Geohidrometria; Instalación del Vecto-pluviometro modelo "J.Na.B" en el Servicio Meteorológico del Uruguay (all published in Revista Meteorológica)

Fernando de BUEN (Dr. Nat. Sci.). Position: Servicio Oceanográfico y de Pesca. Special interests: Icthyology and biological oceanography. Publications: no data. Working on: Fish and other marine life of guonomic information along Atlantic and Rio de la Plata coasts of Uruguay.

Prof. Jorge CHEBATAROFF. Position: Professor of Geography, Facultad de de Humanidades y Ciencias, Universidad de Montevideo, Director, Seccion de Investigaciones Geomorfológicas y Geográficas, and Professor of Geography, Escuela de Profesores, Instituto de Estudeos Superious.

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Special interest: Geomorphology, biography, human geography. Publications: Vegetacion del Uruguay y sus relaciones fitogeográficas con los paises vicinos, 1942, in Revista Geográfica of Pan American Institute of Geography and History; Evolución de la topografia del litoral uruguaya del Plata, 1943; Sierra Mahoma, 1944; Influencia del tapiz vezetal sobre el China, 1946 in Rensta Meteorológica; Vegetacion halofita de la costa uruguaye, 1950; El Uruguay, vision geográfica del territoris (with José Aguiar), 1943; Nociones de Geografía, Iano, Vol. Geografía General, vol. 2, Eurasia y Oceania, II ano, v. 1 Africa America del Norte, v. 2, America del Sur (2/3 on Uruguay); numerous other articles and books. Working on: Microclimatic study of the Montevideo area (with Galimberti); Geological and geographical study of the Mal Abrigo region (botanical, zoological and special weathering studies with Instituto de Estudios Superiores); General study of the Uruguayan coast; Vegetation of the Uruguayan coastal area; Plant formations of Uruguay; Nociones de Geografia. III ano, v. 1 Geografía fisica (in press), v. 2. Geografia Sumana y economica, in work. Both of the latter refer principally to Uruguay.

Arq. Muricio CRAVOTTO. Position: Professor of urbanism and Chief, Instituto de Urbanismo, Facultad de Arguitectura, University of Montevideo. Special interest: Urban planning and human geography. Publications: No data. Working on: Geography of the Montevideo area.

Capitan de Fagata Américo DENTONE. Position: Professor of geography in secondary schools. Special interest: General meteorology and physical oceanography. Publications: Calibración de meteorógrafos, Jan., 1946, Sefigrama, July 1946; Nueus Cifras indicativas de las estaciones meteorológicas, Oct. 46; (All in Revista Meteorológica)

Capitán de Navio Samuel GALLIBERTI. Position: Director, Servicio Meteorólogico del Uruguay, and Professor of Meteorology, Instituto de Estudios Superiores. Special interest: Dynamic meteorology and weather forecasting. Publications: Manual de Meteorología (with Morandi and others). Working on: Microclimatic study of the Montevideo area (with Chebataroff).

Tte. Cnel. Saul CRACERAS. Position: Sub-Director and Technical Inspector Servicio Geográfico Militar. Special interest: Geodesy, topography. Publications: Official reports. Working on: 1:50,000 maps of Uruguay.

Alzola MENDEZ (Dr. Nat. Sci.) Rodoef. Position: Director, Sección de Investigaciones Paleontológicas, Instituto de Estudios Superiores. Special interest: Paleontology and historical geology. Publications: Paleontology and historical geology.

Prof. Maria Teresa MONTAÑEZ. Position: Professor of geography in several secondary schools. Special interest: Economic geography. Publications: Desaroelo de la agricultura en el Uruguay. Working on: Revising above publications with more field work and research.

Prof. Alberto POCHINTESTA. Position: Professor of geography, Instituto de Estudios Superiores and secondary schools. Special interest:

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Mathematical and physical geography. Publications: No data. Working on: Textbook of geomorphology for secondary and higher levels, and a study of the potential atmospheric electricity.

Prof. (Col) Roberto Camejo PUIG. Position: Professor of Geography, Escuela Militar and secondary schools. Special interest: Military geography and topography. Publications: Apuntes de geografía militar.

Anibal RIBEIRO REISSIG. Position: Technical Inspector and chief, Division de Investigaciones Climatológicas, Servicio Meteorológico del Uruguay, Secretary-adviser, Junta Nacional de Meteorología, Professor of Meteorological Instruments, Instituto de Estudios Superiores. Special interest: Climatology. Publications: Datos estadísticos relativos a la gran sequia del pervodo Setiembre 1942 a Abrel 1943, procedented del Servicio Meteorológico del Uruguay, in Revista Meteorologica Oct. 1943; Algunas determinaciones sobre las características de la lluvia en la República en los cuatro estaciones del año, Rev. Met, Oct. 45; Manual de lustrucciones Meteorológicas: Nociones teorico-practicas paia los observadores y amateurs, in collaboration with José Maria Bergeiro; Spec. Publ. #22, Servicio Meteorológico del Uruguay, 1943. Working on: Sintesio Climatológica del Uruguay con los observaciones de 1905 harta 1950.

Major Julio C. ROLETTI. Position: Delegate to Uruguay-Brazil boundary Commission, Ministerio de Relaciones Exteriores. Special Interest: Geomagnetism, military geography, international boundaries, cartography. Publications: "Los problemas geomagneticos en el Urugua" 1939), "La variación deuraa" (1944). Working on: "Cartografía historica del Uruguay, " "Los límites del Uruguay."

Agron. Bernardo ROSENGURTT. Position: Professor, Facultad de Agronomia, Universidad de Montevideo. Special interest: Plant ecology. Publications: Las formaciones compestres y herbaceas del Uruguay; Estudios sobre praderas naturales en el Uruguay.

Prof. Ulises RUBENS GRUB. Position: Professor of geography in secondary schools. Special interest: Geopolitics, didactic geography and cartography. Publications: "Sierra Minuana", "Piriápolis, joya de la cadena balnearia Uruguaya", (all in Revista Geográfica Americana). Working on: Evolución historica, política, y geográfica de los fronteras del Uruguay con Brasil.

Ing. Nicolas SERRA. Position: Geologist, Instituto Geológico del Uruguay. Special interest: General geology and stratigraphy. Publications: Contributed to geological maps of Uruguay and of several departments. Working on: Reconnaissance geological studies of Uruguay.

Ing. Eduardo TERRA AROCENA. Position: Director, Instituto Geológico del Uruguay, President, Comisión Técnica y Financiera le las obras hedroelectricas del Río Negro; Professor of geology, Facultad de Ingeniria, Universidad de Montevideo. Special interest: Geology and hydrology. Publications: No data (but large number). Working on: Directing geological reconnaissance and hydrological studies.

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Ing. José TISCORNIA. Position: Professor de Climatologia and Chief, Sección Fito-meteorológica, Facultad de Agronomia, Universidad de Montevideo. Special interest: Agricultural ecology and meteorology. Publications: Aplicación de los datos de una estacion meteorológica ae servicio de una zona agrícola, Rev. Met. 1947; Algunos reflexiones sobre los cien dias de sequia que estamos experimentando, Reflexiones sobre la comprobución de alguus finómenos micro-climaticos, 48; Resultados de algunos ensayos clima-ecológicos realizados en la Sección Tito-Meteorológica de la Facultad de Agronomia con algunos renglones fundamentales de nuestra producción vegetal, '48. Working on: Microclimatic zones of Uruguay.

Prof. Horacio URETA MARTÍNEZ. Position: Professor of Geography, Liceo Militar, Liceo Frances and Instituto de Estudios Superiores. Special Interest: Regional geography and cartography. Publications: Geografía del Uruguay, 1935; Geografía Humana, 1936; Geografía de Africa y las Americas, 1940; Mapa de la República Oriental del Uruguay, 1:360,000, 1936; Maps of departments of Rocha, Trienta y Tres, Florida, Artigas, Cerro Largo, Paysandá, and Lavalleja at 1:200,000, and of Maldonado, Flores, Sauposé and Soriano at 1:150,000, all in 1938; School wall maps of Europe, Asia, Africa, North America, South America, and the World, 1940; some maps in different drafting style, 1947; Uruguay; Mapa de Turismo (for Texaco), 1:1,000,000; same title, 1:600,000 (for Carrau y Cia) 1948; República del Uruguay; Mapa físico y político, 1:600,000, 1950. Working on: Three school atlases: Atlas Elemental","Atlas Escolas" and "Atlas Universal Superior". (Note: Professor Ureta is preparing to come to New York as cartographer with the United Nations in June, 1950).

Prof. Raúl VAZ FERREIRA. Position: Servicio Oceanográfico y de Pesca and professor of zoology and biology in secondary schools. Special interest: Animal ecology and biological oceanography. Publications: No data. Working on: Economic potentials of marine life in Uruguayan waters.

GOVERNMENT AGENCIES -- RESEARCH PROGRAMS

Geographic field work and research programs, as such, are unknown in Uruguayan government agencies, although a number of organizations are doing work which is closely related to geography. A brief resume of the work being done in these agencies is given in the following paragraphs:

1. Administración Nacional de Combustibles, Alcohol y Portland Edificio Ancap, Calle Paraguay esq. Cerro Largo
   Sr. Francisco TOCCHETI Lespadi, Manager

Ancap is one of the few official organizations to make surveys and to do research in the nature of economic geography. It has made surveys of mineral and forest resources and potentials and made studies of beet sugar production areas, methods and refining and has experimented in growing corn. It has no trained geographers on its staff. Reports are not generally made for public consumption but are for use in Ancap and interested government offices.

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2. Dirección de Hidrografía, Ministerio de Obras Públicas
Calle 25 de Mayo 320, Montevideo
Mg. Humberto Rampoldi, Acting Director

The Dirección de Hidrografía publishes little of its work but has made and is continuing to make studies of stream flow and evaporation, hydroelectric plant sites, areas suitable for and requiring irrigation, river ports, and navigable rivers and possible canals. Most of the reports and maps are for use within the Ministry of Public Works and are not available to the general public.

3. Dirección de Sancamiento, Ministerio de Obras Públicas
Calle José Marté 3379, Montevideo
Ing. Adam Gianoni, Acting-director

The Dirección de Sancamiento is making studies of cities and towns for the laying-out of water mains and sewers. Some 146 cities and towns have been studied to date. Also, reclamation and drainage work is being carried out, principally in the vicinity of the larger cities. The reports and maps are available to the general public only on special request.

4. Dirección de Topografía, Ministerio de Obras Públicas
Calle Pudras 421, Montevideo
(Agremensor) José Pedro Astigarraga, Director

The Dirección de Topografía publishes no studies but prepares cadastral maps of public lands, buildings and of properties to be exappropriated for government use. It also prepares planimetric maps of the various departments of Uruguay at scales ranging from 1:100,000 to 1:200,000. The general archives of this office contain 150,000 cadastral maps of all ages and scales and may be consulted by any interested person.

5. Dirección de Vialidad, Ministerio de Obras Públicas
Calle Pudras 387, Montevideo
Ing. Roberto Pellarolo, Director

The Dirección de Vialidad or National Highway Department, publishes technical bulletins related to road building and in Rutas, issues general information on roads of interest to the traveling public. General road maps of the country are published occasionally. No provision for the public use of the official files, reports and maps has been made.

6. Dirección General de Estadística, Ministerio de Hacienda
Calle Rio Negro 1528, Montevideo
Dr. Fermín Carlos Buado, Secretary general

The Dirección General de Estadística collects, studies and publishes all types of statistical data on Uruguay. Among its regular publications are the Síntesis Estadística and the Anuario Estadístico.

7. Instituto Geológico del Uruguay
Calle Julio Herrera y Obes 1239
Ing. Eduardo Terra Arocena, Director

The Instituto Geológico is principally interested in general geology, economic geology, mineral resources and underground water. It has made reconnaissance studies over most of Uruguay and has published a few technical reports,

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generalized geological maps of the country as a whole and of seven of the departments. While no geographers are employed and the work is not strictly geographical, the results obtained are of use and importance to local geographers. A small geological museum is open to the general public but special permission must be obtained for any research in the library and files.

8. Instituto Nacional de Colonización
Calle Treinta y Tres 1377, Montevideo
Sr. Antonio RUBIO, Director

The Instituto Nacional de Colonización is making studies of large, unproductive (or non-producing) land holdings and has exappropriated several for subdivision and colonization. Reports on the studies made are not normally published for general public use.

9. Junta Nacional de Meteorología
Calle Cerrito 73, 3° piso, Montevideo
Ing. Agron. Ciro Sapriga Vera, President

The Junta, composed of representatives of official and private organizations, interested in meteorology, publishes a quarterly Revista containing meteorological studies and climatological research in Uruguay and other countries.

10. Oficina Nacional de Turismo, Comision Nacional de Turismo
Calle Sarandé 394, Montevideo
Arq. Gualberto Rodreguez barreta, General manager

The National Tourist Office contracts geographers and cartographers occasionally to produce propaganda pamphlets and accompanying maps on tourist attractions and resort areas. While popular in nature, these pamphlets do provide certain information, pictures and maps not available in other forms.

11. Sección de Estadística Agronómica, Dirección de Agronomío
Ministerio de Ganodaría y Agricultura
Calle Uruguay 821, Montevideo
Ing. Agron. Alfredo L. Weiss, Chief

The Agronomic Statistics Section produces reports and an occasional map on crop distribution and yields. While these materials are usually prepared for use within the Ministry, they may be obtained by special request. The most recent of these publications are: Mercados del Mundo: Información Agroeconómica, 1944 and 1946; Informe final de la cosecha de cereales de invierno y de line, año agricola, 1943/44, and same for 1945/46; La cosecha de los cultivos de verano del año 1944 and same for 1946. The regular Boletín of the Ministry, published by another office, contains partial statistics on agricultural products as well as on livestock.

12. Servicio Cooperativo Interamericano de Salud Pública
Ministerio de Salud Pública and U. S. Department of State
Avda. 18 de Julio 2083, Montevideo
Dr. H. Jackson Davis, Chief of Party

SCISP, like its counterparts in most Latin American countries, is working on a joint public health program. Projects, agreed upon by both governments,

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are studied and appropriate action taken. Reports on completed prospects are sent to the Institute of Inter-American Affairs in the State Department. Some prospects, such as the present project to eradicate the Aedes Egypti, or yellow fever bearing mosquito, should be of interest to medical geographers.

13. Servicio Geográfico Militar, Estado Mayor del Ejercito, Ministerio de Defensa Nacional
Avda. 8 de Octubre 3255, Montevideo
Coronel Alberto Bergalli, Director

The Servicio Geográfico Militar was created in 1913 tosurvey and compile the official topographic map of the country. It is also charged with all precise geodetic control and high precision leveling, with assisting in the survey and demarcation of international land boundaries and with making geographical studies. Since 1926, when publication of the 1:50,000 map was initiated, SGM has issued only 34 sheets, covering approximately one-tenth of the area of the country. Good quality triangulation and leveling cover about half of Uruguay. Survey teams have worked with Brazilian and Argentine teams on boundary commissions but only generalities have been settled. Geographical studies may be made for use of the general staff but few have been published. Cartographers, topographers and engineers, but no trained geographers are employed. The map and reference library are generally for official use only and are not open to the general public. A Boletín, published very irregularly (vol. 1, 1924; vol. 4, 1945), contains progress reports and occasional studies.

14. Servicio Hidrográfico de la Marina, Inspección General de la Marina
Ministerio de Defensa Nacional
Avda. de las Instrucciones 1063, Montevideo
Capitan de Fragata Sergio Esteves, Chief

The Servicio Hidrográfico is principally interested in surveys for the compilation of hydrographic charts of Uruguayan waters. Charts covering the Atlantic and Río de la Plata coasts and the Uruguay and Santa Lucia rivers have been published. Work is now in progress on revisions and on new charts, including one on the Lago Artificial del Río Negro at 1:30,000. Reports, other than Notices to Mariners and lists of navigation aids, are rearely published. The Servicio has over 7,000 items in its well-kept map reference library, permission for use of which is readily given.

15. Servicio Meteorológico del Uruguay, Inspección General de la Marina, Ministerio de Defensa Nacional
Calle Cerrito 73, 3° piso, Montevideo
Capitán de Navis Samuel Galimberti, Director

The Servicio Meteorológico collects, compiles, studies and publishes Meteorological data from 22 complete meteorological stations and from 425 rainfall stations. Daily, monthly and seasonal weather forecasts are made. Synoptic maps of ground and upper-air weather conditions are prepared for the use of government offices and airmen. The Boletín, published irregularly, contains statistics and occasional studies by one of the climatologists. Information, whether published or not, is readily available upon request.

16. Servicio Oceanográfico y de Pesca, Inspección General de la Marina, Ministerio de Defensa Nacional
Calle Colonia 1116-20, Montevideo.

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SOYP is making general oceanographic studies, including fishing conditions and potentials and of marine life in the Rio de La Plata and along the Atlantic coast of Uruguay. Most of these are directed towards the economic development of the coastal and offshore waters. Only one information bulletin has been published to date.

GEOGRAPHIC SOCIETIES AND OTHER PRIVATE ORGANIZATIONS

There are three geographical societies in Uruguay, all in Montevideo. Of these, only the newly-formed Asociación de Geógrafos del Uruguay appears to have a definite program of research, field work and publications. It has already outshadowed the older Instituto Histórico y Geográfico and the Instituto Nacional de Investigaciones Geográficas.

Two other private organizations with interests in geography and allied subjects are the Instituto de Estudios Superiores and the Asociación de Antropología y Linguística del Uruguay.

A brief resumé of the activities of each of the five above named entities follows:

1. Asociación de Geógrafos del Uruguay
   Avda 18 de Julio 1195 (Instituto de Estudios Superiores), Montevideo
   Prof. Jorge Chebataroff, President

The Asociación de Geografos del Uruguay (AGU) was founded only on Nov. 30, 1949. It is very like the Asociacão Brasileira de Geografos, after which it was copied. At present it is the only geographical society in Uruguay which is doing geographical research as such. While it had 287 members (as of March 25, 1950), only about 20 are active, both in type of membership and in the geographic research program. Membership is of three types: 1) active, including persons who have produced geographic studies and who are now continuing research; 2) cooperating, including primary and secondary school teachers of geography or who are working in some phase of geographic activity, and 3) adhering, or those who are "friends" of geography. Members of AGU are scattered all over Uruguay but the majority live and work in Montevideo.

The present research and field study program includes 1) a geographic study of Montevideo and its hinterland, 2) a study of a typical tourist resort: Piriápolis and vicinity, and 3) a study of the microclimatic zones of Uruguay. A long term project on which no work has been done, is the preparation of a dictionary of geographic names. It is planned to publish these and other studies in the Revista Uruguaya de Geografía a quarterly whose v.1, no. 1 should have been issued in April 1950. Proofs are being corrected on No. 2.

2. Instituto Nacional de Investigaciones Geográficas
   Avda. 18 de Julio 1824, (Universidad de Montevideo), Montevideo
   (Vacant) Director

The Instituto Nacional de Investigaciones Geográficas (INIG) was founded in 1938 and, until last year, was the leading geographical society. Never

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very large, it now has less than 50 members. A Boletín has been issued at irregular intervals. No regular research program has been followed and none is in force now. INIG is now somewhat disorganized and has no presiding officer as the Director has resigned.

3. Instituto Histórico y Geográfico de Montevideo

The Instituto Histórico y Geográfico is geographic in name only as the society is almost entirely dedicated to historical studies. An occasional study, published in the Revista, is of interest to geographers.

4. Instituto de Estudios Superiores
Avda 18 de Julio 1195, Montevideo
Ing. Eduardo GARCIA de Zuñiga, President
Prof. Jorge Chebataroff, Director, Sección de Investigaciones Geomorfológicas y Geográficas

The Instituto de Estudios Superiores began as a private organization but has since acquired a small government subvention as an aid to its research and teaching activities. There are now three divisions: a series of research sections, a school for secondary school teachers and a national Indian museum.

The research sections, under the direction of specialists, include meteorology, biological climatology, geomorphology and geography, geology, paleontology, music, language, and experimental phonetics, criminology and related sciences, botany, philosophy and pedagogy, Ibero-American literature, and Uruguayan Indian archeology.

The Geomorphological and Geographical Research Section, working in close cooperation with the Asociación de Geografos del Uruguay, is makeing the following studies, the preliminary work on which has already been done and published by Prof. Chebataroff between 1942 - 50: Geological and geographical (botanical and zoological ecology and special work on weathering) studies on the Mal Abrigo regem(northern part of the Department of San José); a general study of the Uruguayan coast, a study of the vegetation of the Uruguayan coast and plant formations of Uruguay. Results of this research are published in the semi-annual Boletín.

For the first time in Uruguayan history a three year course for training prospective secondary school teachers in the geographical sciences was begun in 1950.

5. Asociación de Antropología y Linguística del Uruguay
Calle Buenos Aires 652 (Museo de Historia Natural), Montevideo
Dr. Ergasto H. Cordero, President

The Asociación was founded only in September 1948. It has approximately 20 members, including university professors, students and a few active but non-professional linguists. The members meet to discuss methods, publications and research problems on all phases of anthropology and linguistics. No definite research program has been set up but it is planned to issue an annual Boletín, the first number of which may be published in Mid-1950.

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GEOGRAPHY AS AN ACADEMIC SUBJECT

Until very recently, the teaching of geography was carried on only in the third, fourth, fifth and sixth primary grades and in the first three years of secondary school (seventh, eighth and ninth grades). Elementary general geography and the geography of Uruguay are taught in primary schools. The program for secondary schools calls for three hours per week of geography in accordance with the following program: First year: General geography, Eurasia and Oceania; Second year: Africa and the Americas; Third year: Physical geography, human and economid geography, both with special emphasis on Uruguay. Texts for these courses have been prepared by Prof. Ureta Martinez and nine recently by Prof. Jorge Chebataroff.

No degrees in geography have ever been granted by the University of Montevideo, the only university in the country. Until 1950, no geography courses, with the exception of one in Economic Geography in the Facultad de Ciencias Económicas, have been offered. This year, a course in the Geography of Uruguay is being offered by Prof. Jorge Chebataroff in the Facultad de Humanidades of Ciencias. It is planned to expand this course and, in time, to develop a Department of Geography.

Until 1950, there has been no provision for training teachers of geography in secondary schools and the "professors" were either named directly or on the basis of competitive examinations. In 1950, for the first time, a three year program for the training of "professors of geographical sciences" in secondary schools has been established in the Escuela de Profesores of the Instituto de Estudios Superiores. The program, initiated with 20 students in the first classes, has been organized as follows:

First year (offered in 1950 and thereafter):
- Introduction to mathematical geography and cartography (2 hours)
- General geology and geomorphology (3 hours)
- Meteorology and climatology (2 hours)
- History of geography (1 hour)
- Teaching of geography (1 hour)

Second year (to be offered in 1951 and thereafter):
- Oceanography and general hydrology (1 hour)
- Biogeography (2 hours)
- Human geography and general ethnography (2 hours)
- Regional geography: The Americas (2 hours)
- Geology of the Republic of Uruguay (2 hours)

Third year (to ge offered in 1952 and thereafter):
- Geography of the Republic of Uruguay (2 hours)
- Regional geography: Eurasia (2 hours)
- Economic geography (2 hours)
- Regional geography: Africa, Oceania and Polar lands (1 hour)
- General and special geographical methodology (1 hour)
- Adolescent psychology (1 hour)

An official school for training secondary school teachers is being set up under the National Council for Secondary Education. This will begin to function in 1951. Prof. Jorge Chebataroff will be in charge of courses on geography.

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GEOGRAPHICAL PUBLICATIONS AND MATERIALS FOR GEOGRAPHICAL RESEARCH

Geographical publications:

Periodical publications and maps published by the various government organizations and private agencies have been previously mentioned.

Some of the most important geographical textbooks and publications on Uruguay are:

Aguiar - El Rio de la Plata y el Mar Territorial
Aguiar - Chebetaroff - El Uruguay (text)
Araujo - Diccionario geográfico del Uruguay
Aznárez - Una Nomenclatura de los suelos del Uruguay
Boerger - Investigaciones agronómicas
Chebataroff - America del Sur (Tircluso Uruguay) (Text)
Monografía geográfica sobre Sierra Mahoma
Geografía física y biológica del Uruguay (in process of publication) (Text)
Geografía humana y económica del Uruguay (in preparation) (Text)
Chebataroff - Ureta - Geografía del Uruguay (Text)
Guiffra (not living) - América (Text)
La República del Uruguay (Best geography text of Uruguay, to date - now out of print)
Atlas Esquematico (1 for 1st year and 1 for 2nd year geography) on secondary level.
Guiffra y Di Leoni - El Uruguay en el Mundo
Lambert - Estado actual de nuestros convimientos
Lin y Silva - Acerca de la Geologia del Uruguay (A small guide book somewhat antiquated)
Martinez Lamas - Economía Uruguaya
Riqueza y pobreza del Uruguay
Méndez Alzola - Geologia historica del Uruguay
Montanés - Desarrollo de la agricultura en el Uruguay
Morandi-Galimberti yotros - Manual de Meteorologia
Rosengurt - Las formaciones campetres y Lérbáceas del Uruguay
Ureta Martínez - Geografía de Africa y las Americas (Text) (for his cartographic publications see Section I under his name)
Walther - Estudios geológicos y geomorfologicos
Lineas fundamentales de la estructura geologica del Uruguay

Other Sources of Geographical Materials:

Among other sources of geographical materials, aside from those previously mentioned in other sections of the report that may be of possible interest for certain phases of geographical research are:

Biblioteca Nacional (National Library)
Universidad de Montevideo
Museo Oceanográfico

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Private collections of:

Aguiar (has a fine collection of historical maps)
Chebataroff (has the best private library of publications, has his own photo collection of more than 4,000 pictures on Argentina, Uruguay and Brazil and has also both a geological and botanical collection)
Cravotto (has a library emphasizing city planning - and architectural publications).
Ureta Martínez (has an extensive map library and a collection of geographic publications).

PARAGUAY[5]

5. This section of the report has not been prepared.

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ECUADOR AND PERU[1]

ECUADOR

Geographers and their Research Programs:

Mr. Aníbal BUITRON, Ecuadorian anthropologist, has conducted studies in rural sociology that have considerable value.

Tcnel Marco A. BUSTAMANTE, Comandante. Ia. Division, Ministerio de la Defensa , Quito, National Member, Commission on Geography of the Pan American Institute of Geography and History.

Sr. Luciano Andrade MARÍN, principally plant geographer. Professor of agricultural geography at Universidad Central and Observatorio Nacional. Publications include mainly reports of explorations, including some new observations on physical features, as locations of rivers, characteristics of volcanoes, altitudes and altitudinal limits of plants, etc. Current researches along these lines, but principal research project now in manuscript, on philology of place names in Ecuador. Planning to set up own press and publish especially geographical reports. Ecuadorian.

Dr. George M. MCBRIDE, of Pacific Palisades, California, and Mr. David Basile, Dept. of Geology and Geography, University of North Carolina, are American geographers who spent several years in Ecuador, but who have returned to the United States for an indefinite period. Since they were here until recently, they have fresh data which they are presumably developing at the present time. Dr. McBride's special work was on the Peru-Ecuador boundary, Mr. Basile's rural economic geography of the province of Pichincha.

Government Agencies:

The Ministerio de Obras Públicas has compiled one of the best general maps of Ecuador, scale 1:500,000, which is kept up to date.

The Instituto Geográfico Militar conducts topographic mapping operations and produces sheets at scale 1:25,000. The Instituto has taken an important part in the census mapping program. It is cooperating also with the Inter-

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1. This section was prepared by Dr. F. Webster McBryde, Chairman of the Subcommittee. The section is incomplete in many respects. The Chairman intends to complete the report.

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American Geodetic Survey in its long-range mapping program.

The Dirección General de Estadística y Censos is conducting the most extensive geographical program in Ecuador today, in preparation for the 1950 national census, to be taken starting November 30, 1950. Most of the provinces have been mapped at scales of 1:50,000 and 1:100,000, and main centers of population at 1:5,000. Great detail in drainage, lines of communication, and settlements, to individual houses, is included, and demographic-geographical reports are prepared for most parroquias.

Geographical Societies:

There is no geographical society in Ecuador, though the writer is in the process of organizing an institute of anthropology and geography.

PERU

Geographers in Peru:[2]

Carlos ARRASCO R., Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú

Prof. Emilio Barreto BERMEO, Pontificia Universidad Católica del Perú, Apartado Postal 2139, Lima, Perú.

Prof. Cesar BRAGAGNINI Z., Universidad Nacional de San Agustín, Arequipa Perú.

Ingeniero Jorge A BROGGI, Director del Instituto Geológico del Perú, Lima, Perú.

Prof. Hermann Ugarte CHAMORRO, Universidad Nacional de San Agustín, Calle San Agustín 104, Arequipa, Perú.

Dr. Ricardo Bustamente CISNEROS, Catedrático de Geografía en la Universidad Mayor en San Marcos, Lima, Perú.

Prof. Aurelio del CORRAL, Pontoficia Universidad Católica del Perú, Apartado Postal 2139, Lima, Perú.

Rafael DAVILA C., Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú.

Victor M. DAVILA, Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú.

Coronel Gerardo DIANDERAS, Presidente del Instituto de Geografía, Universidad de San Marcos, Lima, Perú.

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2. These names were provided by Dr. Chauncy Harris, Department of Geography, University of Chicago.

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Prof. Luis Gamarra DULANTO, Pontificia Universidad Católica del Perú, Apartado Postal 2139, Lima, Perú.

Prof. A. Rodriquez DULANTO, Universidad de San Marcos, Lima, Perú.

Walter F. LEIBLINGER, Instituto de Geografía, Universidad de San Marcos, Lima, Perú.

Jorge MENDOZA R., Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú.

Contralmirante Manuel R. NIETO, Presidente de la Comisión de Demarcación de la Sociedad Geográfica de Lima.

Prof. Hugo Hidalgo OCHARAN, Universidad Nacional de San Agustín, Arequipa, Perú.

Prof. Marc PIEYRE, Universidad Nacional Mayor de San Marcos, 446, General-Borgono, Miraflores, Lima, Perú.

Prof. Frederico PONCE DE LEÓN, Universidad Menor de Cuzco, Cuzco, Perú.

Juan PORTOCARRERO, Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú.

Dr. Oscar Miro QUESADA, Lima, Perú. Sociedad Geografía de Lima, Calle Estudios 98, Lima, Perú.

Rafael ROBLES, Instituto de Geografía, Universidad Nacional de San Marcos, Lima, Perú.

Dr. Emilio ROMERO, the foremost Peruvian geographer, is currently serving as Peruvian ambassador to Ecuador.

Coronel Jorge SARMIENTO, Director del Instituto Geográfico Militar del Perú, Lima, Perú.

Prof. Carlos SCUDELLARI S. , Pontificia Universidad Católica del Perú, Apartado Postal 2139, Lima, Perú.

Comandante FAP. Ernesto Roldan SEMINARIO, Director General de Meteorología, del Ministerio de Aeronáutica.

Dr. Edmundo UBILLUS, Profesor, Instituto de Geografía, Universidad Mayor de San Marcos, Lima, Perú.

Coronel Alejandro VALDERRAMA, Director General de Aerofotografía, en el Ministerio de Aeronáutica.

Sr. Arnoldo del VALLE, Pontificia Universidad Católica del Perú, Lima, Perú. Research on colonial geography.

Prof. G. D. ZEVALLOS, Universidad de San Marcos, Lima, Perú.

Capitan de Fragata Esteban ZIMIC, Director del Servicio Hidrográfico y Faros, del Ministerio de Marina.

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Government Agencies:[3]

Instituto Geográfico Militar, Director, Coronel Jorge L. Sarmiento, an engineer; address, Apartado 2038, Lima. The Institute has 35 officers and is completing its 1:200,000 mapping program along the coast. It cooperates with the Inter-American Geodetic Survey.

Geographical Societies:

Instituto de Geografía: This is the Department of Geography in the Universidad Nacional de San Marcos de Lima, under the Faculdad de Letras e Filosofía. The Director is Coronel Gerardo Dianderas S., whose specialty is astronomy and geodesy. The Institute has a staff of a dozen part-time Professors. These include Victor M. Davila, Human Geography; Jorge Mendoza R., geodesy and map projections; Walter F. Leiblinger, geopolitics; Rafael Dávila C., meteorology and oceanography; Juan Portocarrero, topography and hydrology; Rafael Robles, mathematical geodesy; Eduardo Ubillus, human geography; Carlos Arrasco R., human geography; and Alejandore Figueroa A., economic geography. There are 300 students. The Institute dates from 1947 and has a research program.

Sociedad Geografía de Lima: The Society was founded about 1890. It has a library, and has published a Bulletin since 1891. Prior to about 1940 its headquarters were in the National Library when a fire destroyed much of its library and curtailed its activities. The Society was then reorganized by Emelio Romero, currently Ambassador to Ecuador. It now has three rooms at the Instituto Geográfico Militar, Address Calle Estudios 98. The Society receives a grant from the Ministry of Foreign Relations, which in turn appoints the officers. There are now (1950) as follows: President, Admiral Carlos Rotalde; Vice President, Oscar Miro Quesade; Secretary, Commander Ernesto Rolldan S. There is a large membership, but little professional activity.

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3. This part of the report has not been submitted to the Chairman of the Committee on Latin American Geography.

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